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COMPUTERWORLD

Windows NT Server enhancements on tap

By Laura DiDio

Microsoft Corp. will next month ship an enhanced version of its Windows NT Server network operating system. It supports advanced file compression capabilities, laptops and the IBM PowerPC server platform, company officials said.

The forthcoming NT Server 3.51 upgrade has been installed at dozens of beta sites in the past several months, and early users reported that it provides near-flawless performance.

"We've been using NT Server 3.51 for the past month without encountering any problems worth mentioning. And we're using every new feature in [it]— especially file compression and PCMCIA laptop support," said J. Matthew Merrick, vice president of information systems at The Merrick Printing Co. in Louisville, Ky.

"Microsoft has paid close attention to revising and correcting any known problems. NT Server 3.51 is solid and stable, and I'm so confident of that that I intend to deploy it on my production networks as soon as it ships," Merrick added.

Dave Greenberg, president and chief executive officer of EMed Systems Corp.

NT beta, *page 16*

ISDN costs may fall

FCC seeks computer industry input for pending rule change

By Michael Fitzgerald

The Federal Communications Commission is readying a rule revision that could yield significant price cuts for the struggling Integrated Services Digital Network technology.

In an exclusive interview, FCC Chairman Reed Hundt said the commission is readying a "Notice of Proposed Rule Making" aimed at pushing ISDN pricing down low enough to make the technology ubiquitous.

FCC Chairman Reed Hundt *says current regulations are hobbling the spread of the digital network*

Analysts say ISDN installation prices must drop from the $150 range to the $40 range and usage rates to less than 5 cents per minute to attain widespread use.

The FCC actions are also needed to establish a coherent nationwide pricing structure. Today, for example, users on the East Coast pay per-minute rates, while Californians are charged based on "rate miles," which clock the geographic distance that the voice or data transmission travels. And even rates within regions vary: Nynex charges 1 cent a minute to New York but as much as 55 cents a minute in Maine.

ISDN lines can carry four times the amount of data a standard phone line can handle, but only about 65% of phone switches nationwide are ISDN-capable. That gives the technology more limited coverage than some wireless networks.

A drop in price could spur both deployment of the digital network and an increase in the number of ISDN lines.

Rule-making proposals are what the FCC uses to gather feedback from the public on proposed rule changes. This particular proposal is circulating among FCC commissioners and will be released "any time now," a spokeswoman said last week.

In addition, the FCC's actions could lead to increased cooperation among ISDN carriers, potentially eliminating user headaches with

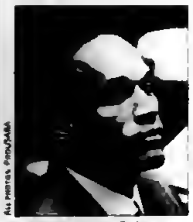
ISDN, *page 117*

IS at O.J. CITY

For the [illegible]

By Joseph Maglitta

You won't see them on television alongside the famous faces of Johnnie Cochran, Robert Shapiro and O.J. Simpson.



Al Petteway Photo/AAA

IS supports *O.J. Simpson's 'Trial of the Century' amid bomb scares, heavy crowds*

But Joe Hannawi, Bob Nichols and a handful of other IS pros help make possible the high-tech courtroom drama watched daily by millions of people worldwide.

So what's it like supporting "The Trial of the Century?"

"It's strange to see the place you work

IS at O.J. City, *page 90*

Unified E-mail directories surface as top user concern

By Suruchi Mohan
NEW ORLEANS

The trouble with maintaining electronic-mail directories was one of the hottest topics at the Electronic Messaging Association conference here last week, where animated conversations buzzed around lunch tables and war stories were traded in the corridors during coffee breaks.

With the initial hurdles of installing corporatewide E-mail systems on users' desktops now behind them, administrators are facing their next set of demands. How can users on disparate mail systems communicate easily both inside and outside the company? Unified directories are the answer.

E-mail directories, *page 117*

Directories provide the following:

- Name/address resolution
- Queries
- Data repository
- Different ways of viewing information

Customer 'data mining' pays off

By Gary H. Anthes
FALLS CHURCH, VA

Walter Tolman

John Pastore: *'If you manage the risk, profitability will happen'*

Some say the devil is in the details, but for Capital One Financial Corp. there is nothing but gold in its hugely detailed database of customer information.

The once-sluggish company has taken off like a rocket, thanks to a savvy use of information technology that enables Capital One to extract rich insights from the data about the behavior of customers and prospects.

"We know a lot about our customers," said James Donehey, Capital One's chief information officer. "We get a lot of empirical evidence from the thousands and thousands of tests we run every year."

The oldest continuously operating credit-card provider in the U.S., 41-year-old Capital One has risen from 18th to 11th place among credit-card companies in the past seven years. Last year alone, its credit-card loans grew by 60%.

The company credits its information technology advances for allowing it to develop marketing techniques that

Data mining, *page 28*

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May 15, 1995

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■ **IBM** prepares to refresh its PC 300 and 700 systems. It also joins with its **PowerPC** partners to provide a glimpse of a Common Hardware Reference Platform. **NEWS,** *page 6*

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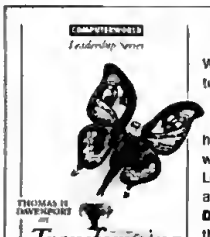

IN THIS ISSUE

What must a CIO do to warrant the title? For one thing, manage more than just hardware and software. In this month's Leadership Series article, **Thomas H. Davenport** takes us through a day with a prototypical CIO. *Following page 40.*

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How do you measure up?

How does your IS department compare with the Computerworld Premier 100? Fill out the Premier 100 survey, and we'll send you a free report showing how your operation compares with Premier 100 averages. Consolidated information from the surveys we collect may be published in a future Premier 100 issue. Send a request on company letterhead to Paul Gillin, Editor, Computerworld, 375 Cochituate Road, Framingham, Mass. 01701 or E-mail to survey@cw.com.

Executive Briefing

There's gold in that customer data. For Capital One and IS executives such as Andy Stein, the key to success is a detailed database of customer information. The credit-card company uses mathematical models, drawing data from **millions of customer records**, to craft its marketing strategy, minimize risk from bad debts and gain profits. *Page 1*

Microsoft has shipped its final beta version of Windows NT 3.51 and plans to unveil a general release next month. It features support for RISC-based PowerPC, file compression and PCMCIA cards for notebooks. Beta users report 3.51 is rock-solid. *Page 1*

Yes, there is information in information services. It's unclear whether there are profits, particularly on the Internet, but corporations can justify participation because it helps them share information with customers. *Page 24.* Security APL in Chicago may have done more than any **financial services firm** to leverage the Internet for fun and profit. *Page 12.* IS finds on-line services to be important tools for finding software fixes, technical information and new talent. *Page 59*

Like a good marriage, data warehouses are not instant; they take time and thoughtful goal-setting to build a foundation. And, like divorce, data warehouse efforts gone bad can be ugly. Users and consultants say **warehouse design** should start with a good definition of what a warehouse is and then proceed with the help of a carefully selected team. *Page 69*

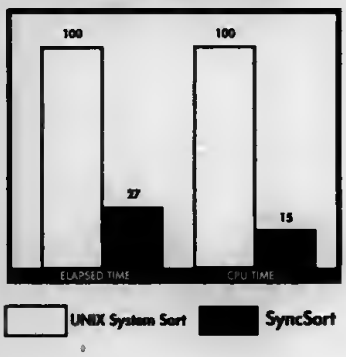
The U.S. Air Force's next-generation fighter plane, the F-22, will feature more than state-of-the-art hardware. It will also run up to 1.6 million lines of code on a system that has the computing throughput of two Cray supercomputers. To manage a job of that magnitude, Lockheed Martin Aeronautical Systems found that a software configuration management tool was invaluable. *Page 75*

The 5th Wave *by* Rich Tennant

"...AND THROUGH IMAGE EDITING TECHNOLOGY, WE'RE ABLE TO RECREATE THE AWESOME SPECTACLE KNOWN AS TYRANNOSAURUS GWEN."

The UNIX System Sort

PERFORMANCE



FUNCTIONS

	UNIX System Sort	SyncSort
RECORD FORMATS		
Fixed length binary	NO	**YES**
Variable length binary	NO	**YES**
ASCII Text	YES	**YES**
RECORD PROCESSING		
Selection	NO	**YES**
Reformatting	NO	**YES**
Summarization	NO	**YES**
Grouping	NO	**YES**
COLLATING SEQUENCES		
Standard ASCII	YES	**YES**
EBCDIC	NO	**YES**
User Defined	NO	**YES**
Multi-byte	NO	**YES**

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D&B Software scraps Oracle support

Reversal on port surprises some customers

By Rosemary Cafasso

In a flip-flop that caught users off guard and that could cost it future customers, Dun & Bradstreet Software last week halted plans to port its client/server applications to Oracle Corp.'s database management system.

Support for multiple databases is considered critical for client/server applications vendors because so many users have multiple DBMSs installed. So far, D&B Software supports only Sybase, Inc.'s software in its SmartStream set of financial, human resources and manufacturing applications, although it says it will look at other database platforms.

Weyerhaeuser Corp., for example, is a key SmartStream customer that understood as of last week that an Oracle port was on the way.

"We had heard they were still working on it and it might be delayed, but it was still their intent," said David Pickles, an information technology manager for the human resources information systems project at Weyerhaeuser.

In addition to using SmartStream with Sybase's DBMS, Weyerhaeuser runs Oracle. "We will need to look into this," Pickles said of D&B Software's changed plans.

Atlanta-based D&B Software has been planning an Oracle port — and promising it to some customers — for at least a year. Company officials last week said D&B Software determined the "cost of entry" to the Oracle environment was too high for the "market opportunity" it would present.

Change of heart

Previously, the company said an Oracle port was critical (see time line above).

D&B Software officials were reluctant to say how much the company had spent on the Oracle port, which it had been working on since August 1994. One executive, however, said it was less $5 million.

"We would have liked them to move to Oracle," said Gayle Best, the assistant controller for Black & Veatch in Kansas City, Mo., and a SmartStream user. "We had been told they would port it."

Some SmartStream users at Sybase shops put a positive spin on last week's news. Keith Minaker, corporate controller at United Grain Growers Ltd. in Winnipeg, Manitoba, said it would give D&B Software an opportunity to focus even more on the Sybase version of SmartStream.

As customers try to determine the ramifications of this decision, D&B Software may be in for a shock. "They will lose business," said Bobby Cameron, an analyst at Forrester Research, Inc. "There are large companies that won't buy core apps that aren't on Oracle. Large corporations must support multiple databases. End of story."

Taking a stroll down Dun & Bradstreet

June 1994 – Customers and industry analysts say an Oracle port is planned at D&B Software for its SmartStream client/server software.

August 1994 – D&B Software and Oracle officially announce a joint project to convert SmartStream to the Oracle platform. The two also announce plans to consider other joint marketing efforts.

January 1995 – D&B Software says Oracle conversion is under way and acknowledges that being "Sybase-only" has limited market opportunities. Company indicates Oracle port could be available in 1996 instead of this year.

May 10, 1995 – Oracle at first states it understood that joint projects were still in the works, then confirms that all projects with D&B Software "are dead."

May 9, 1995 – D&B Software reveals Oracle plans are off.

On its own

Last week, D&B Software announced a distributed computing strategy that it said was more critical to pursue than the Oracle port.

D&B Software plans to provide technology to distribute SmartStream applications and data so application modules will no longer be tied to a centralized database, as they are today.

To provide distributed functions to users, D&B Software will use some of its own technology, including a distribution catalog that keeps a running tab on where data is located, as well as Sybase's Replication Server.

Distributed capabilities will likely become the next hot issue for users as they move beyond the simpler, single-server client/server configurations.

Market leader SAP AG, for example, plans later this year to ship middleware technology with Release 3.0 of its R/3 client/server software. The middleware component would help link multiple R/3s, which would allow users to begin distributing R/3.

Users will see D&B Software's distributed computing wares in SmartStream Release 4.0, due to be shipped later this year, according to Doug MacIntyre, the company's chief executive officer. — *Rosemary Cafasso*

EMC to seek top dollar for Unix disks

By Craig Stedman

In an effort to persuade Unix shops to pay extra to gain mainframe-like storage capabilities, EMC Corp. next month will introduce open systems versions of its fast-selling Symmetrix disk arrays, sources said.

While executives at the Hopkinton, Mass., company declined to comment specifically about the upcoming Open Symmetrix models, they said EMC will try to get a premium price over conventional Unix RAID boxes. EMC's pitch is that Symmetrix will be cheaper to operate than a collection of smaller disk arrays because of its reliability and support for centralized storage management and backup.

Existing Unix arrays sell for $1 per megabyte or less, while mainframe arrays such as Symmetrix can cost three times as much. Analysts said they expect EMC to start bidding the Open Symmetrix arrays at more than $2 per megabyte, although the price will likely go down as capacities increase.

Sounds good

Some EMC customers found the company's argument for higher prices convincing last week, saying they want to apply mainframe-like disciplines to their Unix disk storage to keep it from spinning out of control.

Worldport LA, the Los Angeles port authority in San Pedro, Calif., is embarking on client/server projects and expects "the same kind of service and reliability" from Unix arrays that it's a mainframe Symmetrix provides, said Stan Johnson, director of MIS.

"Good products cost money," Johnson said. "But when you look at life cycle costs, buying the best product up front is often the cheapest way to go."

However, Rich Malone, chief information officer at brokerage Edward D. Jones & Co. in St. Louis, said he is not taking the Open Symmetrix bait — at least not at the prices EMC has dangled in front of him so far.

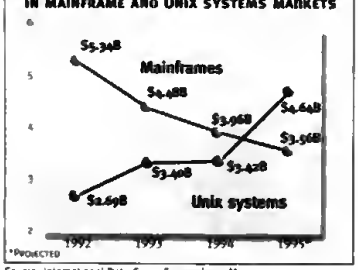
The premium EMC wants over other Unix options "is very prohibitive in our case," Malone said. "There are some real advantages to [a centralized] approach, but liking it and being able to afford it are not always the same thing."

EMC, which expects to get 80% of its revenue from the mainframe market this year, needs to diversify because overall mainframe disk sales are declining (see chart). But getting shops to pay extra for Open Symmetrix "is going to be a challenge," said Robert Callery, an analyst at International Data Corp. in Framingham, Mass. "Everybody is used to declining [disk] prices whether you're in the mainframe or the open systems market."

For small amounts of storage, such as 50G bytes, Open Symmetrix will not be cost-competitive with existing Unix arrays, said Moshe Yanai, vice president of mainframe engineering and chief Symmetrix architect at EMC. "But if you're talking terabytes, that's very different."

The new models, formally called the Symmetrix 3000 series, use the SCSI interconnect and support up to one terabyte per box, industry sources said. EMC last fall shipped a Centriplex open systems array based on a non-Symmetrix controller it bought from outside, but that is a more typical Unix device intended for small shops with 150G bytes of data or less, the sources added.

Crossing paths



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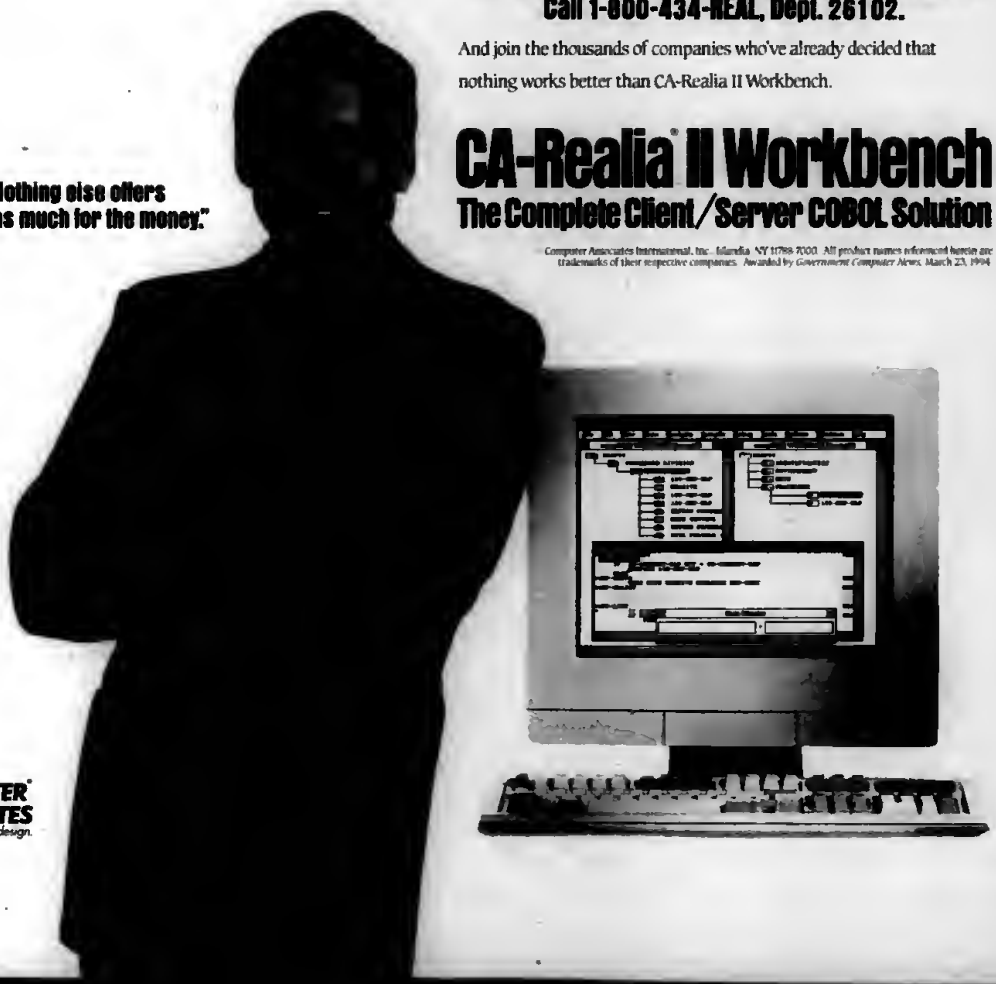

COMPUTER ASSOCIATES
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Something to CHRP about

Unified standard moves ahead with sample design

By Jaikumar Vijayan

The fragmented PowerPC-based hardware development effort has taken one more step toward a unified, Common Hardware Reference Platform (CHRP) standard.

Last week, the CHRP troika — IBM, Apple Computer, Inc. and Motorola, Inc. — released some early details about the specification and a sample desktop system design.

The sample design, released during last week's Apple World Wide Developer's Conference, is not meant to serve as a reference design for developers to base their systems on, cautioned Steve Bunch, a scientist at the Motorola Computer Group in Urbana, Ill.

"The design is meant to show what a system based on the CHRP specification could look like," Bunch said. A reference design will be available to hardware developers when the final CHRP specification is announced.

The release of the initial hardware system design means that users can expect to see CHRP-compliant systems by mid- to late 1996, according to Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz.

David Nagel, senior vice president of worldwide research and development at Apple, said his company plans to deliver its initial CHRP offerings by the end of next year.

A new song

The CHRP specification is an effort by IBM, Apple and Motorola to define hardware specifications for PowerPC desktop systems that can run a wide variety of cross-platform operating systems and applications.

The system detailed by the three vendors last week supports I/O devices and peripherals from both the Power Macintosh and Intel Corp.-based PC environments.

The CHRP-compliant box has a minimum of 8M-bytes of RAM, supports a 1M-byte cache and will be based on the latest version of the PowerPC 604 chip. It will support Peripheral Component Interconnect (PCI) technology and include up to three PCI expansion slots.

The CHRP-compliant PowerPC desktop will be able to run ported versions of IBM's AIX, Apple's Mac OS, Novell, Inc.'s NetWare, IBM's OS/2 for PowerPC, SunSoft, Inc.'s Solaris and Microsoft Corp.'s Windows NT operating systems.

Users such as Arlene Allen, assistant director of information systems at the University of California at Santa Barbara, said a desktop machine that allows users to pick and choose their operating system is precisely the kind of box she hopes emerges from the CHRP effort.

Senior editor Lisa Picarille contributed to this report.

IBM focuses on manageability

Pentium-based desktop systems to debut; Windows 95 support expected

By Jaikumar Vijayan

IBM this week will announce PC updates that are heavy on desktop manageability features — a move indicating that the corporate desktop focus has shifted away from "speeds and feeds."

IBM will launch the PC 300 and 700 systems, which are based on 75-MHz and 120-MHz Intel Corp. Pentium processors and come preloaded with various systems and network management tools.

Product snapshot

IBM PC 300

Processor: 75 MHz Pentium
Memory: 8M bytes
Hard disk: 540M byte
L2 cache: 256K bytes
Graphics: 64-bit, 1M-byte video RAM
Price: $1,995.

This is the first time IBM is introducing Pentium models in its mainstream PC 300 value line. But company officials last week made it clear that the focus of their new strategy is desktop manageability.

Users agreed that the issue was critical to them.

"We are interested" in seeing more desktop management software, said Larry Hugg, a systems integration manager at Sato Travel in Arlington, Va. "Right now a high percentage of our problems are caused by users loading applications that we know nothing about," and additional capabilities such as asset tracking software would solve this problem.

Sato Travel, which uses a mix of Dell Computer Corp. and IBM systems, is automating its asset management functions and is looking for software to do this, Hugg said.

IBM's new systems will come standard with Easy Tools, a desktop management suite that IBM first announced as a desktop option last October. With this week's announcement, the software suite is now standard on all IBM PCs.

The systems can run either OS/2 Warp or Windows 3.1. They also support a number of system buses, including Peripheral Component Interconnect and Extended Industry Standard Architecture. Users can switch buses by simply slipping "riser cards" into the system. Riser cards fit into slots on a PC's motherboard and add capabilities to a system.

IBM said support for Windows 95 will be available when it releases the operating system later this year. IBM will preload Windows 95 on select desktop and mobile systems.

Full of features

Following are some of the management features built into the new PCs:

- An enhanced version of OnLine Housecall, a remote troubleshooting and support tool. This allows help desk support staff — or IBM technical staff — to remotely view users' screens, exchange text dialogues and transfer drivers over networked PCs.
- NetFinity, systems management software that allows networked PCs to take part in asset management, inventory tracking and error prediction.
- Enhanced system security through features such as sliding security panels that put diskette, CD-ROM and hard disk access under lock and key. The systems also have tamper-evident cover switches that automatically alert network administrators if anyone tries to open the system.

Chemical Banking outsources PC support, services to Unisys

By Julia King

In a cost-cutting move that industry analysts expect other large banks to quickly follow, $185 billion Chemical Banking Corp. in New York last week turned over support and service of its worldwide PC base to an outside company.

Under the terms of a three-year, multimillion-dollar deal, Unisys Corp. in Blue Bell, Pa., will maintain some 30,000 multivendor PCs, servers, printers and terminals previously supported under separate contracts Chemical Bank had with manufacturers and other providers. The bank has 30 strategic business units at more than 100 locations worldwide.

The contract is significant because it is one of the few desktop outsourcing agreements that encompasses a company's global PC resources. Also notable is that virtually none of the equipment covered under the contract belongs to Unisys.

"Even more than cost savings, a consistent level of service is among the specific benefits we expect to get from this," said John Irvine, a vice president in Chemical Bank's information technology and operations unit.

The agreement allows the bank's business units to customize support and maintenance programs by choosing from various options offered under Unisys' Desktop Services program. This enables units to match equipment with an appropriate level of service. Trading floor PCs, for example, would be ensured of immediate, on-site service, while other less critical PCs might be supported on a cheaper, one-day turnaround basis.

It all adds up

PC life cycle costs, which include service and support costs, add up to about $40,000 per desktop over five years, according to Gartner Group, Inc. in Stamford, Conn.

Meanwhile, analysts said they expect other banks as well as global companies in banking and other industries to follow Chemical Bank's lead in choosing a single source for service.

"The main challenge for all global players is supporting different locations around the world. The business is on the [PC] screen, which means it needs a timely response," said Bill Bradway, a technology analyst at The Tower Group in Wellesley, Mass. "With one vendor, they benefit because they only have to call one party rather than stop and figure out whose box it is and which [service] vendor to call."

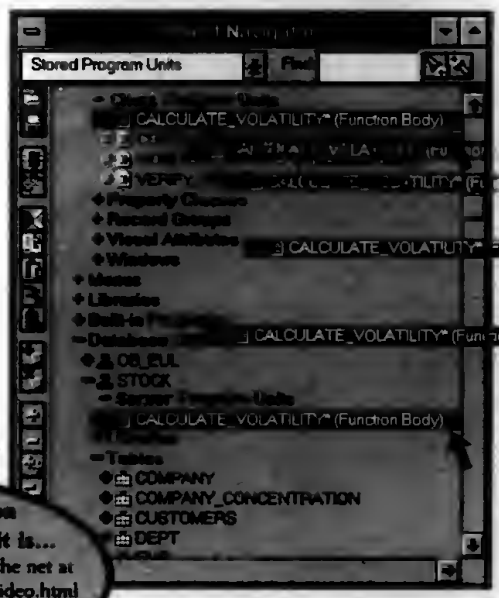
Chemical Bank's 30 individual business units will design their own support plans, choosing from Unisys Desktop Services that include the following:

- PC and LAN asset management
- On-site and/or depot repairs
- PC procurement, installation and integration
- Help desk support
- End-user training

The one-call rule holds even in cases where Unisys is selectively tapping subcontractors to service certain machines — notably IBM's RS/6000 and AS/400 platforms — in some domestic and international locations.

"There are a couple of products that we don't do a lot of work in, but in any of the places that we are using subcontractors, Unisys has a presence," said Gerry Gagliardi, vice president of worldwide customer service in Unisys' desktop services group.

Only Developer/2000 delivers drag and drop application partitioning.



Drag from the client...

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Redefining Productivity

Sybase may slip on System 11 delivery

Rigorous testing cited as possible cause

By Kim S. Nash

The clock is ticking for Sybase, Inc. and its next-generation System 11 database.

The Emeryville, Calif., company plans to put System 11 in beta testing this quarter, but a large portion of Sybase's user base may not see the product until late this year — a few months behind schedule, Sybase acknowledged last week.

Sybase officials had promised that System 11, the company's much-anticipated parallel-processing database, would enter beta testing by June, with general availability to follow next quarter.

The beta test is on schedule, but now a so-called "controlled release" for System 11 — under which just a handful of select customers receive the product — is more likely to occur next quarter than mass shipments, said Beri Hartman, vice president of product marketing at Sybase.

"We've always said, maybe not as loudly, that quality will be a gating factor," Hartman said.

System 11 has more rigorous quality and performance testing hoops to jump through than its System 10 predecessor, and that could delay the product, she explained. Some of the tests are mandated by Sybase's certification under International Standards Organization 9000 rules.

"It's certainly possible that we'll slip those dates because we're doing things a lot differently this time," she said.

Significant delays could hurt Sybase. The company unexpectedly lost a sizable number of sales last quarter because some users looking for databases for multiple-CPU hardware shunned System 10, said Mark Hoffman, Sybase's chief executive officer [CW, April 17].

Frequently, System 10 performance falls markedly on machines running more than four to six processors, Hoffman said. He also cited anticipation of System 11 as a reason for last quarter's unexpected drop in System 10 database sales.

Rich Edwards, an analyst at Robertson Stephens & Co. in San Francisco, said a smooth launch of System 11 is critical for Sybase because it is "the most behind in a new product cycle" compared with rivals Informix Software, Inc. and Oracle Corp.

COMING ATTRACTIONS

Users anxiously await key Sybase System 11 database features

- Fully parallel query, index, backup, sort and other tasks
- Row-level locking
- Support for hardware clusters
- Variable memory block sizes
- Application queues with adjustable priorities

Raring to go

Yet users briefed by Sybase and those involved in alpha-test programs of System 11 remain enthusiastic. Teleport Communications Group plans to put customer billing and other key applications on servers with several CPUs during the next few years, said Patrick Socci, vice president of information services at the New York phone company.

"I'm comfortable that for the next five years, we will be in sync," Socci said of Sybase and its product plans.

Sybase tests on "real customer data" have so far shown System 11 outperforming System 10.02 by up to five times, Hartman said. She declined to specify which hardware platform Sybase uses for tests. However, Silicon Graphics, Inc. in Mountain View, Calif., is helping Sybase build some of the parallel features planned for System 11.

Around the corner

Oracle is expected to announce next week an upgrade to its flagship database that includes much-awaited graphical administration features for managing central and remote copies of the Oracle database, according to a source close to the Redwood Shores, Calif., vendor.

Oracle 7.2 is due to ship this month on Sun Microsystems, Inc., Hewlett-Packard Co. and a few other selected platforms, said a source at Oracle.

The product is expected to include several features lacking in Oracle 7.1, including the following:

- ▶ Faster parallel query processing — breaking up an end-user request into several parts that can be processed simultaneously then recombined.
- ▶ Secure Network Services, a set of features designed to make Oracle databases safer from network prowlers.
- ▶ Oracle Network Manager 3.0, an upgrade designed to let administrators graphically manage and control Oracle databases connected to one another via SQLNet 2.0, Oracle's network protocol translator.

— Kim S. Nash

News Shorts

Dell to ship boxes preloaded with Windows 95

In what analysts described as a major marketing coup, **Dell Computer Corp.** last week announced it will ship a "limited number" of systems preloaded with beta versions of Microsoft Corp.'s Windows 95. The operating system will ship on Dell's OptiPlex and Latitude families of desktop PCs, according to a company spokeswoman. Users will, however, have to pay for the beta software, Dell said. Dell also announced last week that Windows 95 will ship standard on all Dell desktop and notebook lines when the operating system is released, unless customers indicate otherwise.

FCC: Mobile rules not needed

The **Federal Communications Commission** last week denied the petitions of seven states seeking to continue regulating rates for commercial mobile radio services, including cellular service providers. The FCC ruled that Arizona, California, Connecticut, Hawaii, Louisiana, New York and Ohio need not regulate the services because the market has kept costs in check. The states were required to show that the market was not adequately protecting consumers from unreasonable or discriminatory rates.

IBM builds a warehouse

IBM last week introduced a low-end suite of tools for building departmental or workgroup warehouses that can later be tied together to form an enterprisewide decision-support system. IBM's Visual Warehouse runs on an OS/2 application server and supports the OS/2 and AIX versions of its DB2 database. The low-end offering can handle up to 30 users and 50G bytes of data. Software pricing starts at $32,500 with one user, IBM said.

Digital does desktops

Digital Equipment Corp. is now offering to manage a company's entire desktop computing operation, from acquisition to disposal, for a monthly, per-seat fee. The initiative, to be announced tomorrow, combines Digital's specialized asset management software with a full range of services, including help desk and hardware maintenance. Depending on the level of services, the cost ranges from $200 to $400 per seat per month.

Warp Connect ships

Hoping to secure a place on the corporate desktop, IBM this week will ship OS/2 Warp Connect, a connectivity version of its OS/2 operating system for users who want remote or networked access to information. Warp Connect offers peer-to-peer networking capabilities, remote access features and enhanced TCP/IP support to provide dial-up or LAN connections to the Internet or other on-line services.

Carbon Copy 3.0 debuts

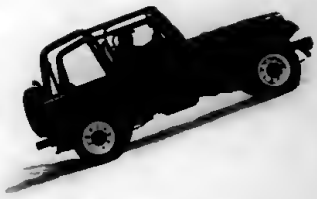
Microcom, Inc.'s Carbon Copy 3.0 remote access software will ship June 15 at an expected street price of less than $120. It is Windows 95 compatible and provides remote control file transfers and synchronization, two-way remote drive access, remote printing, graphics card compatibility and multilevel security. Current users of Carbon Copy products such as DOS or Windows or users of other products can upgrade to Carbon Copy 3.0 for $49.

SCO scales its Everest

The Santa Cruz Operation's new Unix operating system, code-named Everest for its high degree of scalability, was renamed SCO OpenServer 5 at a press conference last week. The operating system can handle up to 30 Intel Corp. CPUs and adds improved security, performance and reliability. It is scheduled to ship at the end of the month.

SHORT TAKES A drastically downsized **Scott Paper Co.** last week named Barbara A. Prutzman as its chief information officer. Scott has been aggressively downsizing for the past 18 months in an effort to concentrate on its core paper tissue and towel business, and in October, it farmed out all of its information systems operations to Computer Sciences Corp. (CSC).... **IBM** has combined more than 30 on-site customer service offerings for the AS/400 and various software products into a single program.... **CSC** has signed a 10-year software license with **Computer Associates International, Inc.** in Islandia, N.Y., under which CSC will be able to run a wide variety of CA software for its outsourcing customers' operations. Terms of the agreement were not released, although CA officials described it as one of its largest licensing contracts to date.... **CA** and the Netherlands-based **Baan Holding B.V.** have settled all legal disputes about the licensing of certain parts of Baan's Triton software to The ASK Group, Inc., which CA acquired last June.

INTRODUCING SQLBase 6!



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Sun's HotJava bubbles up for 'net cruising

By Jean S. Bozman

Sun Microsystems, Inc. plans to shake up the Internet with HotJava — new browser technology that can put videos and stock tickers in downloaded applications and then deliver a software package or a baseball game on-line.

The browser software will be announced at SunWorld 1995 in San Francisco next week and distributed free on the Internet in a bid to make it an industry standard.

HotJava's underlying object-oriented development language — similar to C++ — was developed by Sun's First Person lab project, sources confirmed last week. Sun's hardware division is preparing Internet servers to go with it; while its SunSoft, Inc. unit will build security and billing software around it.

Sun's browser has the potential to make Internet surfing qualitatively different for users, and it could extend the capabilities of Internet applications.

"It allows you to write platform-independent applications and to distribute them on the Internet at the click of a button," said Tony Iams, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y.

Initial versions will support Sun's Solaris Unix operating system and Microsoft Corp.'s Windows 95, sources close to Sun said last week.

HotJava also offers security with a feature called SunScreen, said Jerry Michalski, managing editor of "Release 1.0" a newsletter in New York. "It creates a lot of interactivity in a safe way," he said, explaining that widely distributed applications will not infect remote client machines with computer viruses.

Possible uses for HotJava include user-friendly applications for first-time Internet explorers as well as billing applications that meter application use of Internet services. The same technology could be applied to delivery of network services through set-top boxes, sources said.

Morning brew

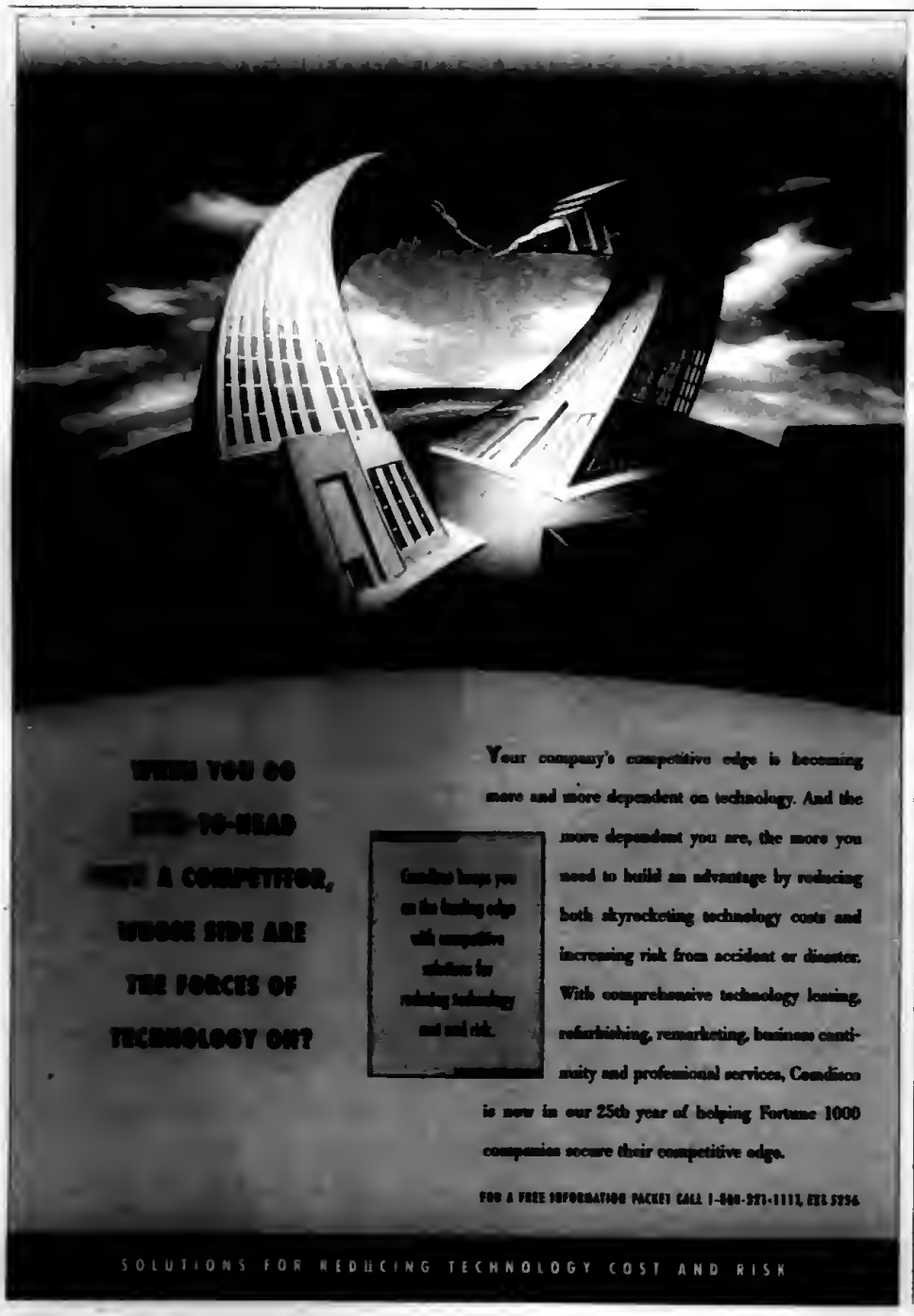
HotJava is just another example of a wide variety of browsers bubbling up for the Internet, including Silicon Graphics, Inc.'s three-dimensional interface. "We're in for a two-year rock 'n' roll ride," said Jay Batson, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Product choices

Highlights at SunWorld 1995 are expected to include the following:

- An announcement that Sun's UltraSPARC 64-bit chip is available in sample quantities to systems vendors.
- An announcement of new variations on Sun Microsystems Computer Corp.'s Netra Internet server line.
- Keynote by Sun Chief Executive Officer Scott McNealy on the direction of networked computing, including corporate enterprise networks and the Internet — where Sun plans to play a major role in software and servers.
- Integrix, Inc. in Newbury Park, Calif., is expected to announce an Internet gateway server based on Sun-compatible SPARC RISC chips.
- Tatung Science & Technology, Inc. in Milpitas, Calif., will show a low-end workstation compatible with Sun's SPARCstation 4 and 5 models.
- Creative Digital Research, Inc. in San Jose, Calif., will show its HyCD Sun-compatible CD-mastering system that creates CD software for PCs, Macintoshes and Unix systems.

Serving up the World-Wide Web. See page 62.



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ON-LINE SERVICES

Financial services spread across Web

Internet trailblazing puts Chicago's APL Security 'ahead of the curve' in accounting & measurement

By Ellis Booker

Every day, an innocuous IBM RS/6000 server at Security APL, Inc. in Chicago processes a half million inquiries from across the worldwide Internet, spitting out stock quotes that are 15 minutes old.

This is the Quote Server, one of the most popular landing sites on the Internet (www.secapl.com/cgi-bin/qs).

But the Quote Server is just the tip of the iceberg at Security APL, which appears to have done more than any other financial services company to leverage the power of the Internet.

The company has also launched a fee-based service called Portfolio Accounting World-Wide, or PAWWS, which went live in December. For $8.95 per month, PAWWS customers get an Internet-accessible service that offers a comprehensive and growing portfolio management and accounting system.

The portfolio service includes automated links to Securities and Exchange Commission archives, corporate home pages, news and on-line stock trading services such as Howe Barnes Investment, Inc.'s The Net Investor.

At the top

"Our mission has always been to be the premier provider of portfolio accounting and measurement to independent investment and money managers," said Jay N. Whipple III, who founded the company in 1978. The company's clients include money management firms, bank trust departments, insurance companies and brokerage houses.

Whipple recalled seeing his first demonstration of Mosaic, the graphical browser for the Internet's World-Wide Web, back in December 1993.

"I originally saw it as a platform for intracompany communications," he said. Now, each of the firm's 90 employees, who work in offices in Chicago, Jersey City, N.J., Boston and San Diego, maintain their own hypertext home pages. Those home pages can be accessed by other employees or external clients. Hypertext Markup Language (HTML) has become an easy and compelling groupware platform in his company, Whipple added.

While building these in-house applications with HTML, Whipple and his staff realized the possibilities of using graphical browsers to convey financial information and set links to related information elsewhere. "We wanted to give something back to the 'net," said Whipple, who launched the Quote Server in March 1994.

Customization is key

Security APL is "way ahead of the curve," said Richard Crone, a senior manager in the Center for Electronic Banking at KPMG Peat Marwick in Los Angeles. Few of the 400 financial services company domains on the Internet have any kind of interactive presentation, he noted.

"Customizing the information that customers see is the key to success" in this environment, he added.

Opening doors

"We're taking utilities that were once price prohibitive and giving them to money managers, financial advisers and retail customers," said Valerie Kahn, president of PAWWS. Although she would not specify the number of PAWWS customers, she said there are fewer than 100,000.

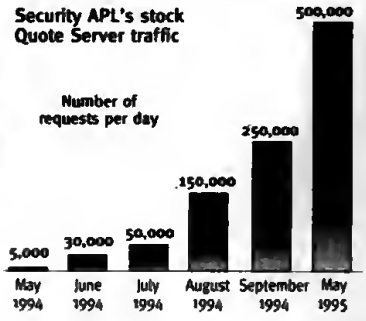
Christopher Mantel, a portfolio manager at Gabelli Assett Management Co. in Rye, N.Y., has been using PAWWS every day for the past month and a half.

"This is pretty encompassing, but it isn't a replacement for real-time, professional financial information companies like Quotron, ILX and Bloomberg," Mantel said, referring to Wall Street's top quotation services, which provide real-time stocks feeds as well as specialized news and analysis.

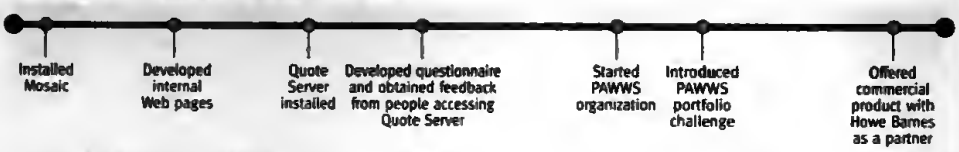
Take a 'Closer Look' at on-line information services. See page 59.

Server statistics

Security APL President Jay Whipple attracts new customers with the company's popular and free Quote Server for up-to-date stock prices.



Security APL's Internet presence in 1994



Fight for on-line banking accelerates

Bank of America in San Francisco and **NationsBank** in Charlotte, N.C., joined forces last week to acquire **Meca Software, Inc.** from **H&R Block, Inc.** for $35 million. The surprise move is the clearest indication yet that banks are taking seriously the threat that nonbank companies might win the on-line banking business. Meca had been selling private-label versions of its Managing Your Money software package to banks such as NationsBank, which would then offer it to customers as part of an on-line banking product.

Microsoft Network bandwagon rolls on

A second wave of companies joined the Microsoft Network bandwagon last week. Earlier this year, **Microsoft Corp.** released a list of hardware and software firms that will set up technical support forums and distribute software across its on-line service. This time, the list of 44 companies emphasized providers of special-interest information, such as *Cooking Light* magazine, RockNet, Inc., Hollywood Online and Women's Wire, along with general-purpose news outlets such as C-Span and *U.S. News & World Report*. The list also included familiar interactive shopping providers such as QVC and Home Shopping Network, Interactive. The Microsoft Network will officially open when Windows 95 ships later this year. Users will log on to the network with communications software built into Windows 95.

MCI, The News Corp. form alliance

MCI Communications Corp. and Rupert Murdoch's **The News Corp. Ltd.** last week formed the largest alliance to date between a networking company and a media organization. They announced a plan to invest $200 million apiece in a joint venture to deliver electronic news, education and entertainment to consumers and businesses worldwide. MCI will also invest $2 billion in The News Corp., a $21 billion media conglomerate that owns Fox Broadcasting Co., 20th Century Fox, *The New York Post*, *TV Guide* and more than 130 newspapers.

—Ellis Booker

Making it safe

CyberCash, Inc., developer of a secure payment system for the Internet, last week signed up the country's seventh largest credit-card processor as its second bank partner.

First of Omaha Merchant Processing, a division of First National Bank of Omaha, joined Wells Fargo Bank of San Francisco, which announced an alliance with CyberCash in late December. First of Omaha's 44,000 merchants will have access to the CyberCash system by the end of next month.

In the CyberCash architecture, merchants never see card numbers because they are encrypted between the consumer and the verification authority, which could be a bank or a credit-card company.

—Ellis Booker

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Apple answers Windows 95

Next-generation Copland OS easy to customize, full of help features

By Lisa Picarille
SAN JOSE, CALIF.

Responding to the looming threat of Microsoft Corp.'s Windows 95 and its snazzy new graphical user interface, a traditionally tight-lipped Apple Computer, Inc. last week showed off an early version of Copland, its next-generation operating system for the Macintosh.

Due out in mid-1996, Copland is expected to appeal to users because of its fully customizable interface, streamlined method for handling files and information and modular design.

Although Copland is more than a year away from delivery, observers said Apple could risk losing hardware sales as users delay purchases in anticipation of the operating system. But the risk of allowing Microsoft to claim an advantage in the user interface arena — traditionally a major selling point for the Macintosh — was even greater.

Multiple features

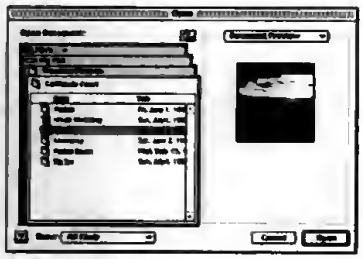
Copland is packed with features that information systems managers may find attractive, such as a high degree of customizability.

With Copland, systems can be set up to accommodate multiple users. Users can have their own desktops, complete with applications and folders that can be accessed by other users.

In addition, users can fully customize their desktops and set up the interface for their own skill level. For example, an IS manager could set up a Macintosh so that a novice user or temporary employee could just click on buttons to perform certain tasks.

Copland also offers personal assistance that goes beyond today's "How do I do that?" type of help to a "Do it for me" type of command.

Mike Bailey, a systems integrator at Lockheed Martin Missile and Space Co. in Sunnyvale, Calif., said he is looking forward to various improvements in Copland and hopes it will eliminate problems his site has had "with conflicts between [the system] software and [other software] extensions." Lockheed has more than 8,000 Macintoshes.



With Copland, *users will be able to fully customize their desktops for their skill level. But it will run only on Power Macintoshes*

Copland is the second phase of Apple's plan to incorporate OpenDoc technology into the Mac OS to create a more modular operating system (see story below).

Because Apple also relies on the PowerPC microprocessor as its hardware foundation, Copland will be the first major systems software upgrade that will run only on the Power Macintosh.

It will not offer backward compatibility with older Macintoshes based on Motorola, Inc. 68000 chips because it will be 95% native PowerPC code. Copland is being designed to take advantage of the RISC-based PowerPC instruction set, allowing quick translation from the operating system kernel into machine language for the hardware.

"It is extremely important that it's native PowerPC," said one IS manager at a Fortune 500 firm who asked to remain unnamed. "Raw compute power is more important than a lot of other factors. And by having a native PowerPC operating system, you get more power. Right now, I don't think we even come close to exploiting the system."

Maxing the Mac

With Copland, users will also gain improvements in the way the Macintosh handles information, including a revamped file manager, new methods of searching for information and the ability to organize data by attributes.

The product is also expected to include built-in electronic-mail facilities via Apple's PowerTalk as well as direct Internet access.

"It would be great in a classroom environment to set up multiple desktops and ensure that I could block students from trashing certain elements like my system folder," said Thomas Meiers, director of information support services for the Livermore School District in Livermore, Calif. Meiers now completes the same task with a third-party software program.

"We're looking forward to all that Copland offers," said Brian Comnes, information technology center director at DHL Airways in Redwood City, Calif.

Apple support is getting high marks. See page 41.

On eve of shakeup, Apple targets specific markets

Dependency on hardware may loosen

By Lisa Picarille

Two months after announcing a major restructuring by function rather than lines of business, Apple Computer, Inc. is making the transition to a company targeted at specific market segments, said Dan Eilers, newly named vice president of marketing and solutions.

Education, small business, government, large business, entertainment and home markets are the areas where Apple will hawk its wares, Eilers told developers last week at Apple's Worldwide Developer Conference in San Jose, Calif.

"We are picking our customers up front instead of creating technology [and] then trying to find customers to sell the products to," said Eilers, who is the former chief executive officer of Claris Corp., Apple's wholly-owned software arm.

Apple's Dan Eilers: *New thrust includes third parties to provide the technology*

Yet unlike similar attempts by Apple in past years, the company plans to rely on third parties to provide the technology, he said. Eilers added that in some cases, Apple might even provide direct funding to developers.

Industry watchers said Apple's willingness to work with other developers was a refreshing change. The company has long been criticized for directly competing with its third-party developers.

"The good thing about Eilers is he's not religious," said Pieter Hartsook, editor of the "Hartsook Letter" in Alameda, Calif. "He doesn't care if the solution is invented at Apple or elsewhere, which is going to be good for Apple."

What makes Apple's new market focus possible is OpenDoc (see story below), the linchpin of Apple's software strategy. OpenDoc's modular approach gives Apple a flexible way to create software that meets the needs of specific markets while still addressing a broad range of markets, Hartsook noted. Apple also expects its new focus to reduce its dependence on hardware-related revenue. Last year, only $100 million of its $8 billion in sales stemmed from software licensing and sales.

"We can do anything, but we can't do everything," Eilers said.

Final Mac beta of OpenDoc out

By Lisa Picarille
SAN JOSE, CALIF.

Establishing OpenDoc as a standard for interapplication communication was a key theme here last week at Apple Computer, Inc.'s Worldwide Developers Conference, where the Cupertino, Calif.-based company announced the release of the final beta version of its OpenDoc component software tool kit for the Macintosh.

OpenDoc, a rival to Microsoft Corp.'s OLE 2.0 technology, is a cross-platform, document-centric architecture that enables developers to create parts and services that users can then mix and match within applications.

The tool kit, which will be made available to more than 50,000 developers, streamlines the process for creating OpenDoc-compliant parts or applications.

Object ORIENTED

OpenDoc is key to Apple's plans and the foundation for future versions of its systems software. It is backed by industry leaders such as Novell, Inc., IBM and Lotus Development Corp. The final release of OpenDoc for the Macintosh is due in September; the Windows version is due to ship six weeks later.

Novell also underlined its commitment to OpenDoc by demonstrating a pre-alpha version of its AppWare for OpenDoc application development tool. Announced at Comdex/Fall '94, AppWare for OpenDoc is due in the fourth quarter.

"OpenDoc is our No. 1 top priority, then OLE," said Joe Firmage, vice president of strategic planning for NetWare at Novell.

AppWare is a fifth-generation language visual development tool that allows developers to quickly and graphically construct network applications using prebuilt software components. Versions of AppWare for Windows and the Macintosh are already shipping.

Apple and IBM also reaffirmed their commitment to OpenDoc with an agreement to jointly develop a suite of tools to enable commercial and corporate developers, value-added resellers and consultants to create and script OpenDoc components for custom-built applications.

The forthcoming development environment — for which IBM and Apple declined to announce delivery dates — is expected to run on Macintosh, OS/2, AIX and Windows platforms. It will incorporate Basic language technology and object-oriented extensions. Symantec Corp., Language Systems Corp. and Metrowerks, Inc. also announced OpenDoc support.

Users are generally enthusiastic about recently announced OLE extensions. See page 76.

Object tools help developers leverage user input

By Elizabeth Heichler

Corporate developers are finding that object-oriented tools, such as the one being introduced this week by ParcPlace Systems, Inc., make it easier to involve end users in business process re-engineering projects. The tools also help developers design applications that more closely meet business needs.

Beta users said ParcPlace's new tool, called MethodWorks, is so straightforward that line-of-business users can use it to provide input during the early phases of application design.

Intellicorp, Inc. in Mountain View, Calif., earlier this month began shipping a new version of its Object Management Workbench (OMW), an object-oriented analysis package. Companies such as GTE Corp. have used OMW to help users and developers communicate better during business process re-engineering projects.

"When users are involved in the development process, you get software that fits the business better, and that's the biggest payoff," said Joe Whitesell, president of Physical Software, Inc. in East Lansing, Mich.

Application development

Whitesell is using a beta copy of MethodWorks on a consulting project at Florida Power & Light Co. in Juno Beach, Fla. He said he was surprised at the degree to which users are involved in application design at the utility. "The trend is toward users acting as developers because the tools are getting to the point where they are simple enough," he said.

MethodWorks, in particular, was designed to "get way upstream in the software process," Whitesell said. The tool lets Whitesell take the end users' plain English descriptions of what business task they need to accomplish with a piece of software and turn those descriptions into a more formal object model.

Applications are then developed using VisualWorks, a Smalltalk environment from ParcPlace.

For its part, OMW has helped a massive business process re-engineering project at GTE Telephone Operations in Tampa, Fla., according to Tony Vanker, senior infrastructure consultant.

The OMW features an animated event diagramming capability. Showing users these animated processes, where business processes are depicted as moving through progressive stages, has proved to be a valuable communications tool, Vanker said.

"We can sit down with a user, show him the process, and he can point out missing steps," Vanker said. "It's an excellent rapid prototyping tool."

Chrysler Corp. is also using OMW now, although it did not have the tool for a large business process re-engineering project carried out a year and a half ago, said Tom Hadfield, manager for new payroll systems at the company's Centerline, Mich., offices.

With OMW, the data can be more easily shared by developers working on different projects, Hadfield said.

New object-oriented analysis tools

MethodWorks 1.0	Object Management Workbench 1.3
ParcPlace Systems, Inc., Sunnyvale, Calif.	*Intellicorp, Mountain View, Calif.*
Lets corporate application developers describe business processes automatically; identifies potential business objects as information is entered.	Automates the process-oriented Martin-Odell methodology, considered a good fit for business process re-engineering; available with support for multiple users.
Platforms: Windows 3.1 and Windows NT; SunOS expected in June.	**Platforms:** SunSoft's Solaris and HP-UX for development; Windows 3.1 for deployment.
Price: $995 for Windows and Windows NT; $1,395 for SunOS.	**Price:** $13,490.

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Standards to ease wireless data transfer

By Mindy Blodgett

The wireless communications revolution could take an important step forward next month when a group of competing companies expects to finalize standards that set the stage for interoperability between separate networks.

If the Portable Computer & Communications Association (PCCA) is successful, mobile users would be one step closer to being able to transfer data as simply as they can make a long-distance telephone call.

The PCCA will meet June 15 with the hopes that an agreement will be hammered out for wireless extensions to the Open Systems Interconnection (OSI) model of worldwide communications. The standards will set modem configurations that are usable across all packet-switched and circuit-switched wireless wide-area networks.

The PCCA is made up of 51 vendors, including Microsoft Corp., Lotus Development Corp. and Oracle Corp., wireless networks ARDIS [Ardis Co.'s Advanced Radio Data Information Services] and RAM Mobile Data USA L.P.; and such heavy hitters in the wireless field as AT&T Corp., McCaw Cellular Communications, Inc., Ericsson Communications, Inc., Motorola, Inc. and Metricom, Inc.

Blessing for all

Users said they would welcome standards that would speed the implementation of easy wireless communications.

"I say if they can pull this off, then God bless them," said Marc Dodge, telecommunications manager at United Parcel Service, Inc. in Mahwah, N.J. "That would allow us to pool those networks. Right now, you have to select between them, and none of them meet all the specifications."

But Dodge said the agreement may come too late for his company.

"I have to decide between vendors in the next couple of months, and I'm certainly not waiting for this," Dodge said. "It remains to be seen whether these companies can do this [set the standards] without cutting each other's throats."

Lee Nolan, senior communications engineer at Travelers Insurance Co. in Hartford, Conn., said users want to be able to send data over incompatible networks.

"The worst case is that you have to rely on ARDIS in one part of the country and [Cellular Digital Packet Data] in another," Nolan said. This is a problem because the two networks are incompatible. "Without those hurdles, we might consider wireless."

Roberta Wiggins, an analyst at The Yankee Group in Boston, said the "delicate balancing act" among the companies that are both competing and collaborating on the PCCA is "difficult but inevitable."

The PCCA is a group of companies trying to set interoperability standards for wireless networks.

"One of the major stumbling blocks for wireless data has been the lack of integrated solutions," Wiggins said. "With standards, it will simplify the process of connecting existing applications to the wireless environment."

Thus far, the standards effort has been collegial and cooperative, according to William Frezza, chairman of the PCCA Modem Standards Committee.

"The contention level is very low; there is no catfight here," he said.

Frezza said the PCCA's goal is to set standards that allow users to run wireless applications without having to do their own integration between competing service providers.

Frezza said the PCCA hopes there will be a diagram of the standards "blessed by Microsoft" by the end of the year and that a year from now, "you will have new products."

Migration to HP-UX 10.0 tops user group agenda

By Jean S. Bozman
PHOENIX

Much of the buzz at last week's Hewlett-Packard Co. workstation users' group conference here concerned methods of migrating to the latest release of the HP-UX Unix operating system — and many users said they are in no great rush to move.

At the InterWorks '95 conference, attendees also heard about a new series of graphics workstations scheduled to debut on June 12 [see box]. The new desktop units will use 120-MHz PA-RISC 7200 chips, industry sources said.

HP-UX 10.0, released in February to developers and expected to ship in the summer as a general 10.01 release, includes new file directory layouts found in most Unix System 5.4 implementations. It also has performance boosts of 10% to 20%, HP said.

But to gain the new file directories, which will simplify management of Unix 5.4 systems from various vendors, users must change all their custom applications to conform [CW, May 8].

After viewing HP's step-by-step migration outline, which is contained in an inch-thick book, some users here said they are waiting for the kinks to be worked out before they move. Others are waiting for software vendors to port their packaged applications.

"We just don't have the manpower to do an extended evaluation right now," said Robert Dodds, a professor of civil engineering at the University of Illinois at Urbana-Champaign.

"As soon as I get a copy, I'll load it on my machine to see what kind of effect it will have," said Stephen Saint, a data network specialist at DSC Communications Corp. in Plano, Texas. Questions high on his checklist: "Is it going to break my applications or use different path [names] or commands?"

New arrivals

HP said new chips are also on the way. The 64-bit HP PA-RISC 8000 will arrive early next year as an upgrade for current systems. By the late 1990s, the merger of HP's PA-RISC and Intel Corp.'s x86 microprocessors announced last June will produce a series of chips for laptops to high-performance systems, said Bernard Guidon, group general manager of HP's Computer Systems Group.

The HP/Intel chips could ship as soon as 1998. HP executives said. They will run both Unix and Microsoft Corp. Windows NT in native mode and will be capable of supporting side-by-side displays of Unix and NT applications on users' screens, HP sources said.

That would remove the need to run Windows-on-Unix translation or emulation software on Unix systems and let users store Windows software on Unix file servers. "You should be able to run off-the-shelf Windows programs," said Kevin Wong, a network systems engineer at East Bay Municipal Utility District in Oakland, Calif.

Graphic account

The family of HP graphics workstations set to debut on June 12 will move data, in big chunks, over a 960M byte/sec. system bus.

The desktop workstations, which sources said will be called the HP 9000 Model 770 line, will be companion products to a new J series multiprocessor technical server, code-named SkyHawk [CW, May 8].

Features include a new graphics subsystem design, which links PA-RISC chips to a pair of graphics controller chips on a separate graphics accelerator card. The result will be peak floating-point performance of 200 million floating-point operations per second, HP managers said.

After the workstations debut, HP will reduce the prices on older units and discontinue the 715/33, 715/50 and 725/50 models by year's end.

—Jean S. Bozman

Windows NT

CONTINUED FROM PAGE 1

in Orlando, Fla., was similarly impressed. "Windows NT Server 3.5 sure beats struggling" with hard-to-use management and naming schemes in other network operating systems, he said. "NT Server 3.5 and 3.51 are a dream to install and configure."

EMed Systems is the outsourcing arm of Orlando Health Care Group, also based in Orlando, which has 62 Windows NT 3.5 servers. NT Server 3.5 and 3.51 are deployed in Orlando Health Care's triage room, where the nurses use the network operating system to access clinical patient data, among other things. "If NT Server didn't work reliably, the patients would suffer. We've never had any major problems with 3.5, and I expect reliability will improve even more in 3.51," Greenberg said.

Those sentiments were echoed by Briscoe Stephens, advanced scientific systems coordinator at NASA/Marshall Space Flight Center in Huntsville, Ala. He said he is "elated at the additional stability and more robust feature set" in Windows NT Server 3.51. Stephens said he was enthusiastic about the new file compression capabilities, which help the space facility effectively double its disk storage space.

And, unlike some other disk compression facilities, NT Server 3.51 allows network administrators to compress individual files and not the entire disk. This means that if there is a defect on the disk, individual files may be lost, but the whole disk will not go bad.

Stephens said he is also a big fan of the improvements in the Remote Process Control facility. This sets up and controls various network protocol communications within the Windows NT Server.

In Version 3.5, however, Remote Process Control calls often slowed the server and sometimes cause crashes. The problem has been eliminated in Version 3.51, users said.

This facility is crucial for the NASA/Marshall Space Center, which runs scientific and engineering applications and is adding data-intensive graphics and larger files to the mix, Stephens said. Had the glitch not been corrected, the increased overhead from large and graphical files would have caused the "server to grind to a screeching halt," he said.

Based on such positive user feedback, Mike Nash, Microsoft's group product manager for Windows NT, said the Redmond, Wash., company is "on track" to ship 3.51 in June.

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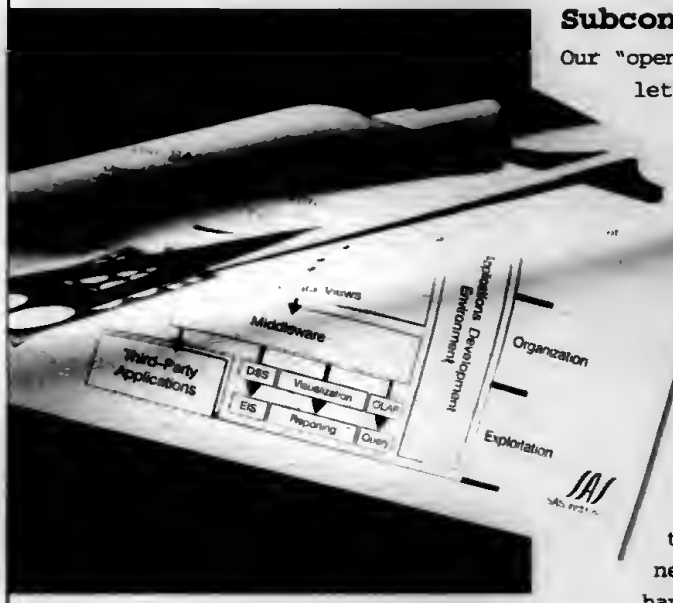

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'Agent-less' travel planning surges on-line

By Ellis Booker

Just as one fierce storm can forever alter a beach at a tropical resort, a single event last month has the potential to change the look of the U.S. travel business and prompt greater use of "agent-less" electronic ticketing.

U.S. airlines recently modified the formula by which they compensate travel companies for booking passengers. Previously, agencies were paid a 10% commission for the net ticket price on domestic flights. Under the new plan, compensation is capped at $25 per leg or $50 per round-trip fare.

For airlines, which have struggled through a costly decade of mergers, acquisitions and re-engineering, the cap is yet another cost-cutting measure. Last year, airlines paid an estimated $6 billion to $7 billion in commissions to travel agencies, a whopping 15% to 20% of their revenue. But for an estimated 30,000 U.S. travel agencies, it will force them to make up their margins by either charging travelers for previously free services or exploring new and cheaper ways of ticketing.

"We're seeing a crescendo of activity in on-line [travel] information, ticketing and payments," said Philip Wolf, president of Procuswright, Inc., a Sherman, Conn., consultancy specializing in travel marketing over interactive networks.

He said the most promising systems will use graphical front ends such as the Internet's World-Wide Web. Today's booking systems, such as EasySabre from SabreGroup, are character-based. Even the single Internet-based ticketing service available today — PCTravel from American Travel Corp. in Raleigh, N.C. — does not work on the Web. Users must Telnet from the Web page (http://www.nando.net/pctravel.html) to the system.

Time travel
How do you think travel arrangements will be made in five years?

More computers will make reservations	49%
No significant changes	41%
Travel agencies will consolidate	34%
Organizations will centralize more travel functions	30%
More faxes will be used to make reservations	28%

Base: 345 travel managers; multiple responses allowed

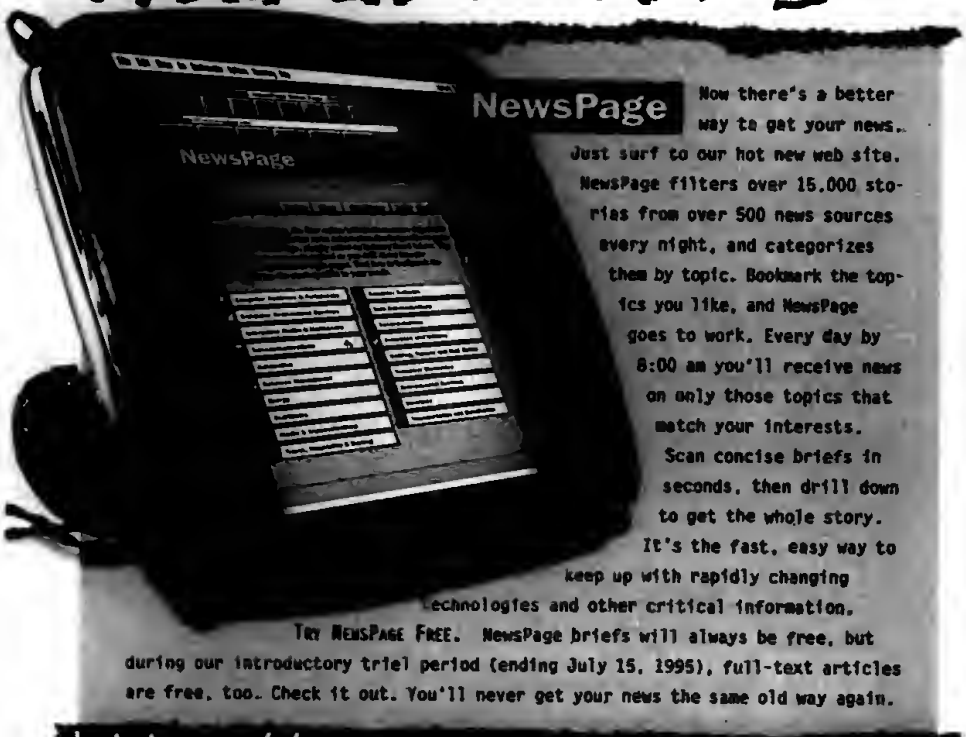
Source: Runzheimer International, Rochester, Wis.

At American Express Travel Related Services Co. in New York, letting business passengers handle simple bookings helps cut labor costs. "If we can move some of the easy bookings to an automated system, we can provide better service for those passengers who need a live agent," said company spokesman Richard D'Ambrosio. He said consumer research indicates that 20% to 30% of business travelers would consider booking their own travel electronically. This month, American Express's Internet page added the capability for card holders to book their own airline tickets.

While "agent-less" ticketing probably represents only $100 million of the $60 billion domestic airline business, Wolf is convinced it will grow. "Like telephone operators, bank tellers and typesetters, travel agents must exploit, not fight ... the information age," he noted.

Recently, several companies have appeared to end run traditional travel agencies. Travelogix, Inc. in Austin, Texas, has a $9.95 per month service that gives customers a direct graphical interface into the computerized reservation systems of several airlines. Within a year, Travelogix will offer a Web version of its service across the Internet.

are you still getting your news from dead trees?



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Firms seek secret to 'net success

By Ellis Booker

A slew of recent surveys about Internet buying activity are attempting to answer one fundamental question: How can a corporate presence on the Internet be cost-justified?

Unhappily for the information systems executives trying to make this assessment, the surveys are still preliminary and may not give enough fodder to convince skeptical senior executives of the wisdom of getting on-line.

But companies can justify participation on the Internet because it "allows them to provide good information and collect good information from their customers," said Sunil Gupta, director of the Hermes Project at the University of Michigan Business School in Ann Arbor. Revenue alone, however, cannot justify investing in the electronic channel, he added.

Last month, Gupta launched the third GVU/Hermes WWW Survey, which seeks to gauge buying habits and value perceptions of shoppers visiting World-Wide Web sites. This survey, which concluded last week, collected responses from an estimated 10,000 visitors.

The survey included 15 to 20 questions on users' concerns and preferences for payment systems for on-line purchases.

Gupta's results will be published free to the Internet community in June at http://www-survey.cc.gatech.edu/cgi-bin/Entry.

Meanwhile, another survey suggests that as many as a quarter of all Internet marketers are profitable.

ActivMedia, Inc., an interactive marketing company in Peterborough, N.H., released a survey earlier this month in which 22% of active Internet marketers report that their business Web sites are profitable.

"We've refuted the conventional wisdom that nobody but Web consultants and service providers are making money," said Vice President Jeanne Dietsch.

Fully 40% of those asked said they expected their sites to become profitable in 12 to 24 months. Only 5% of marketers said they were disappointed by their experiences.

Shop 'til you drop

Five percent of the 10,000 daily visitors to the Internet Shopping Network's electronic mall on the Web buy something, according to Simba Information's Electronic Marketplace Report. Top sellers on the network include modems and specialty computer hardware as well as gifts such as flowers. Commodity products such as PC clones and productivity software produce less sales revenue.

It's the marketing, stupid!

Effective marketing seems to be the cornerstone of commercial success on the Web. All but 16% of the group that is happy with its Internet business use some sort of marketing technique.

"I think that is very telling," Dietsch said. "We have a bunch of very naive marketeers who wouldn't succeed no matter what medium." Demonstrations and free samples seemed to be the most significant marketing technique, she added.

ActivMedia also found that among larger firms — those with more than 500 employees — 16% said they were increasingly relying on the Internet and 11% would be "seriously impaired" if their Internet connection were terminated. The 11% probably refers to those Internet-based start-ups with no other business model, ActivMedia said.

ActivMedia's report is being released this month for $495. The firm can be contacted at report_info@activmedia.com.

Should companies outsource their Web server operations? See page 62.

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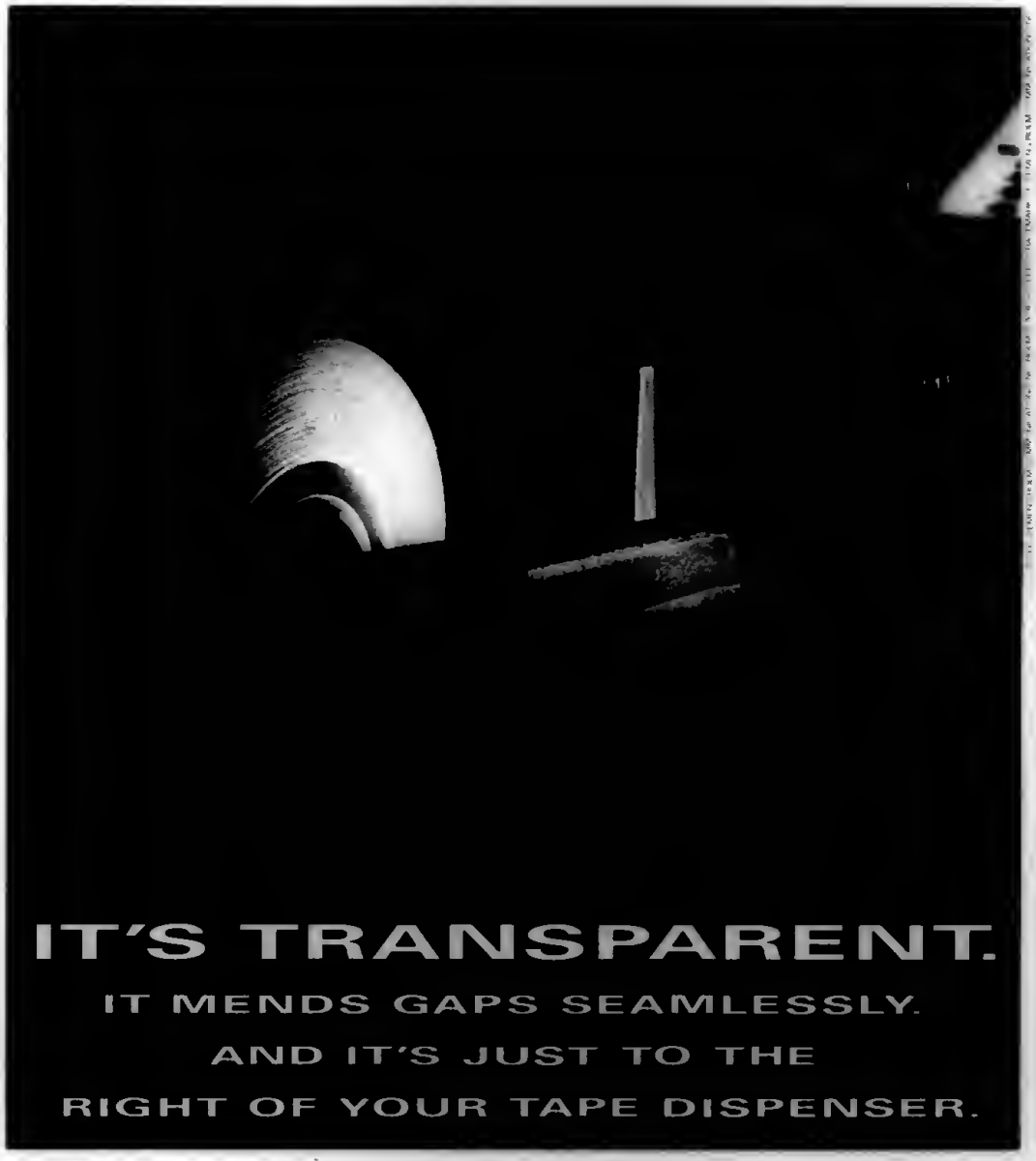

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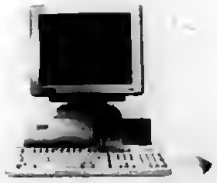
This finger checks the system memory

This finger inventories monitors



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COMPAQ

Striking gold

CONTINUED FROM PAGE 1

are now widely used in the industry and for giving it one of the lowest bad-debt write-off rates in the credit-card business.

"Our proprietary information-based strategy is the cornerstone of our success," the company wrote on the first page of its annual report.

One of Capital One's most valuable assets does not show up on the balance sheet in its annual report: millions of customer records built up from years of credit-card transactions. The company leverages those records — with mathematical models it developed — to test-market new credit-card offerings in a risk-free environment.

"The credit-card business is not the banking business — it is really the information business," said Richard D. Fairbank, chairman and chief executive officer of Capital One, which was spun off last November from Signet Banking Corp. in Richmond, Va.

At the foundation of the information strategy are the records of current and potential customers, which are "mined" using computer models that employ actuarial and behavioral principles to predict individual risk and credit-card use patterns. The market success and risk associated with a product launch can be predicted, in part, from past usage patterns.

Many ideas crash and burn, but those that survive the tests have much of the risk wrung out of them, said John Pastore, information technology infrastructure manager. "We base our marketing decisions more on risk than on profitability. If you manage the risk, profitability will happen," he said.

"Credit cards are credit cards are credit cards," Pastore said. "It's our computer models that make us unique.

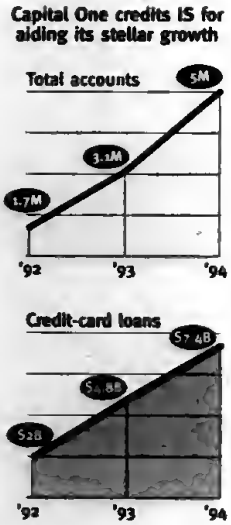
"We start with brainstorming sessions," he added. "What factors should we test? What [is] the meaning of the factors, and how do you measure them? In any mailing there are hundreds of tests — from font sizes and colors on the envelope to fees and interest rates. We are good at predicting that if we use this color, we will get that response."

How the computer models work is a closely held secret, but they allow Capital One to identify and target very small segments of its customer base. "Potentially, we can target a product at the [individual] account level," said Andy Stein, an assistant vice president of information systems.

"We look at service and operations as opportunities for revenue, not as expenses," said Marge Connelly, a vice president and manager of customer service, back-office operations and quality assurance.

Connelly said many credit-card companies view functions such as customer statement preparation and mailing as commodities and outsource them. "But we have found tons of ways to manipulate those processes to bring us additional value," she said.

For example, Connelly said the sort sequence of the customer file can be set to minimize postage costs or to allow a variety of inserts, each carefully calculated to appeal to certain customer segments.



Capital One's Andy Stein and John Pastore *encourage employees to take risks and innovate*

"A lot of people just say, 'Spit it out in account number order,' but there are usually three or four variables that you can optimize," Connelly said. "You have to look at the trade-offs and then go in the technical folks and ask them to create something pretty flexible."

That kind of flexibility is not available to companies that have outsourced their data processing, she added.

Capital One's methods have led to industrywide innovations such as "balance transfer" offers in which the company offers a temporarily low interest rate to induce people to move balances on a competing card to a Capital One card. They have also enabled Capital One to reduce its annual charge-off rate from 5.6% in 1994 to 4.5% last year. Each percentage point is worth more than $70 million before taxes.

And in an industry where companies often have just four products — Visa and MasterCard in regular and "gold" versions — Capital One has thousands of offerings. The firm offers secured and unsecured cards, student cards, joint account cards and affinity cards, each with various combinations of interest rates, fees, terms and conditions.

"They were among the first to use very targeted solicitations and pricing strategies to attract the most profitable customers — low-risk customers who maintain a monthly balance," said Michael Freudenstein, a financial services analyst at J. P. Morgan Securities, Inc. in New York. "They were out front with the 'balance transfer' product, for example."

Being there first

Now that other companies are going after the same balance transfer prospects, Capital One is mining the data for new opportunities, Freudenstein said. "They are searching for the next great product, and they want to be there first again," he said.

Last year, Capital One reversed course on its tradition of outsourcing and insourced its data processing from Electronic Data Systems Corp. It cost the company $49 million to break the long-term contract, but the move was necessary to give Capital One maximum flexibility with its IS resources, Pastore said.

The company is completing a move from mainframe applications accessed by dumb terminals to "networked systems," a term Pastore prefers over "client/server" because it implies more of a peer-to-peer arrangement.

A new fiber-optic wide-area network connects a Unisys Corp. A19 mainframe, two Amdahl Corp. 4400s, a Tandem Computers, Inc. Himalaya scalable parallel computer, eight Hewlett-Packard Co. HP 9000 T500 database servers, several Sun Microsystems, Inc. servers and 3,000 PCs.

Pastore declined to provide details on how all this gear is used, but clearly, the data mining applications get a high priority. "We have more MIPS on the analytical side than on the operational side of the business," Pastore said.

Capital One at a glance

- Oldest continuously operating credit-card provider in the U.S., formed in 1953.
- Spun off last November from Signet Banking Corp. in Richmond, Va.

World-Wide Web home page: http://www.capital1.com.

1994 FINANCIAL DATA

Net income – $95M
Credit-card transactions – $9.6B
Assets – $3.1B
Credit-card loans – $7.4B
Accounts – 5 million
Employees – 2,470

How to build a better mousetrap

Capital One's John Pastore calls himself an "infrastructure manager," but he has no title on his business card.

"We have published org charts, but they are valid for about five minutes," he explained. "We don't like boxes on charts. We want people to live in the white space."

By that he means employees are given extraordinary freedom to get their jobs done, unencumbered by layers of management.

"We try to achieve consensus by facilitating and mediating and letting the correct solutions bubble to the top," said IS manager Andy Stein.

Capital One's IS shop has grown from 30 people a year ago to 300 now, with 95 openings waiting to be filled. Pastore said the company goes after the top 5% of students at the best business and engineering schools.

Paradoxically, for a company that is by its own account "obsessively vigilant" about limiting credit risk, Capital One encourages employees to take risks. "We are trying to take huge steps," Pastore said. "You tend to learn more from failures than from successes, so we prefer EYA to CYA." The "E" stands for expose.

"It's like the analyst who goes running down the hall shouting, 'Eureka! I've got it!' and believes he's invented the new mousetrap," said CIO James Donehey. "He can come back in two to three months and say, 'That was a dismal failure' and not damage his career." — *Gary H. Anthes*

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Seagate buying binge continues

Disk drive vendor adds Frye Computer to acquisitions roster

By Steve Moore

Seagate Technology, Inc. in Scotts Valley, Calif., last week continued its aggressive drive into the network and systems management software market by acquiring Boston-based Frye Computer Systems, Inc.

While Seagate poses no immediate threat to established network and systems management platform providers, analysts said that could change in the near future. "If Seagate pulls all of its components together, they could have a world-class network and systems management offering," said Rob Enderle, an analyst at Dataquest, Inc. in San Jose, Calif.

In addition to providing network and systems management tools, Seagate also will become a more important player in the storage management field, said Michael Peterson, president of Strategic Research Corp. in Santa Barbara, Calif. "We haven't seen the rest of their cards yet, and there is a lot more to come," he added.

Starting this summer, Seagate will integrate products from Frye and other recent acquisitions — including NetLabs, Inc., Palindrome Corp. and Network Computing, Inc. (NCI) — so they operate well together and can be tied into enterprise network and systems management platforms.

At a glance

Established	1979
Number of employees	5,000
Gross annual sales	$3.5 billion
Major products	Disk drives

Frye Computer Systems, Inc. Boston

Established	1988
Privately held	
Major products	LAN management software (Frye Utilities for Networks)

Products acquired by Seagate include Palindrome's backup and storage management software, Novell, Inc.'s NetWare LAN management software from Frye and NCI and NetLabs' Unix network management technology, portions of which are licensed by NetLabs to Hewlett-Packard Co. and SunSoft, Inc.

Come on down

Users welcomed the prospect of another major contestant in the network and systems management software race.

"Competition is good. Capitalism brought us Starbucks coffee," said Michael Atkinson, systems and network administrator at Northwestern University in Evanston, Ill., and a user of Seagate disk drives and Palindrome's Network Archivist software.

The higher profit margins in the software business are clearly fueling Seagate's acquisition binge: The disk drive powerhouse has acquired five software companies in the past two years, according to Peterson. Disk drives, he noted, will drop to "40 cent per megabyte OEM prices by the end of this year."

But while Seagate's acquisitions will bring in the expertise to support the company's diversification into software, "they now face the monster task of filling disparate products together," he added.

The identical task faced OpenVision Technologies, Inc., a Pleasanton, Calif., vendor that gobbled up several small fries in the systems management arena two years ago. Seagate "clearly must do a better job [of product integration] than OpenVision did," said Dataquest's Enderle. OpenVision is still struggling to integrate management products from a slew of companies into one framework, Enderle said.

Compaq refocuses on customers

By Michael Fitzgerald

With its surging growth threatening to turn into a tidal wave, Compaq Computer Corp. last week restructured in an effort to keep its customer focus from being swept away.

Compaq bolted from top-tier player to No. 1 in PCs as sales more than tripled since 1991, from $3.3 billion to $10.9 billion last year.

Compaq's restructuring split up the commercial division of its $5.6 billion North American sales organization and shuffled around several executives. Compaq now has a "major accounts" business unit for customers with more than 1,000 employees and a commercial business unit for customers with fewer than 1,000 employees.

"With the organization we had before, the bandwidth to stay in tune with all the various customer requirements was a challenge," said Ross Cooley, senior vice president of the Compaq North American organization. Between the tremendous growth overall and its presence in new markets, such as the consumer arena, Compaq needed to refocus, he added.

Compaq was particularly concerned that it was not meeting the needs of its corporate customers, Cooley said.

"Bill's Bicycle Shop and Schwinn Bicycle Co. were lumped all together — we were not functionally organized for that commercial customer. This gives us that focus," he said.

More timely deliveries

One customer contacted last week said he hoped the move would improve his main issue with the firm — product availability.

"The thing I've always complained about with Compaq is their product availability," said Ken Roos, manager of information technology at Rollins Hudig Hall of Massachusetts, Inc. Roos said he likes Compaq's service and delineated product offerings but would like more timely product deliveries. The less than 1,000-employee insurance adjuster uses Compaq's low-priced ProLinea desktops.

"Bill's Bicycle Shop and Schwinn Bicycle Co. were lumped all together — we were not functionally organized for that commercial customer."

— Ross Cooley, senior vice president, Compaq North America

Analysts generally agreed that Compaq seems to be moving in the right direction, but that the vendor will have to correct some of its long-standing issues.

"Compaq needs to be lighter on their feet, and this will help them," said John Dunkle, president of WorkGroup Technologies, Inc. in Hampton, N.H. Dunkle said one test of the reorganization's effectiveness will be whether it can prevent Compaq from getting into situations such as last year's fourth quarter, when the company was caught short on its supply of Pentium-based systems as the market rapidly shifted to Pentium.

Some analysts said Compaq was being proactive.

"Compaq is bent on beating IBM, and this positions it to go after [IBM's] mainframe [customers]," said JoeAnn Stabel, senior director of research at Channel Marketing Corp. in Dallas.

Briefs

Integra acquires two

Former Microsoft Corp. executive Dwayne Walker's new firm is only a few weeks old, but it is already acquiring other companies. New to **Integra Technology International, Inc.**'s lineup are **Midak International**, a 10-year-old custom software integration firm, and **Fourth Wave Software**, a wireless and mobile computing developer. Walker will remain chairman and chief executive officer, and the combined companies will have more than 100 employees.

Wireless goings-on

Dayna Communications, Inc. in Salt Lake City has formed two subsidiaries to develop products for the remote access market and wide-area wireless communications. Meanwhile, **CAI Wireless Systems, Inc.** in Albany, N.Y., announced that **Bell Atlantic Corp.** and **Nynex Corp.** have invested $30 million in it. In March, the two companies said they would invest up to $100 million in CAI.

SAP growth to wane

SAP AG last week cautioned analysts that while its recent growth has been impressive, the company does not expect it to continue through the year. The Walldorf, Germany-based software firm, which produces the popular R/3 client/server software, saw revenue jump by 66% last year to $1.1 billion.

Lannet soars

Lannet Data Communications, Inc., a supplier of intelligent, fault-tolerant switching hubs in Irvine, Calif., announced financial results for its first quarter, which ended March 31. Lannet reported record sales of $21.9 million, up 44% from $15.2 million for the same period in 1994. Net income for the quarter was $2.4 million, or 22 cents per share, an increase of 109% from $1.16 million, or 11 cents, for the same period last year.

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- 23 Dir./Mgr. Sys. Development, Sys. Architecture
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- 80 Information Centers/Libraries, Educators, Journalists, Students
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Operating Systems
- (a) Solaris
- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
- (g) Windows
- (h) NeXTstep

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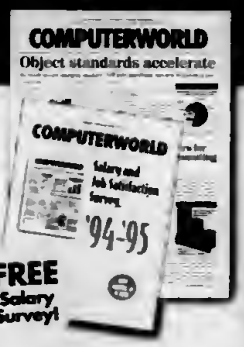

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- 65 Communications Systems/Public Utilities/ Transportation
- 70 Mining/Construction/Petroleum/Refining/Agric
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- 23 Dir./Mgr. Sys. Development, Sys. Architecture
- 31 Programming Management, Software Developers
- 41 Engineering, Scientific, R&D Tech. Management
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- (d) Unix
- (e) Mac OS
- (f) Windows NT
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- (h) NeXTstep

App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No

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OBJECT WORLD

UPDATE No 8

Objects in Action 1995

Computer Associates' Sam Greenblatt talks about the role of objects in business.

Recently, we met with Sam Greenblatt, Vice President of Research and Development at Computer Associates, the $3 billion software giant. Mr. Greenblatt is also a member of the Object Management Group's (OMG) Board of Directors and a judge for Computerworld's Object Application Awards program. Here he talks about the role of objects in supporting business objectives. And the value of attending Object World San Francisco.

So when did you first start using objects?

"I've been interested in object technology for many years, but my first real business application involving OT was in 1989 when I was at Candle Corporation. We turned to OT because it was really the only technology that could handle the complexity of the business problems we were trying to solve at that time. Since then, I've become a believer in the power of objects."

How are you putting objects to work at Computer Associates?

"As you know, today's business users have boundless access to information across networks and services . . . they're no longer constrained by platform. Our job is to support this new business paradigm. Here at Computer Associates, the technology of choice for developing robust business solutions in this open, distributed environment is object technology. We're leveraging OT across all our product lines to achieve rapid deployment of client/server applications. We've developed the CA-Unicenter not only to manage this transformation but to enable it as well."

How did Computer Associates develop applications prior to this?

"Well, like a lot of other companies in the past decade, we were confined by limited network bandwidth, expensive hardware and restricted resources in development tools. But Computer Associates recognized that it needed to move to a unified development environment masking data, communications and computing resources. That's why we developed CA-90. The company recognized that by moving to CA-90 it could leverage its legacy systems, protect its database investment, and provide multiplatform portability and integration. Now object technology just extends it that much further."

How does Object Technology fit into the picture?

"First of all, the specifications for unified development at Computer Associates call for object technology. We use OT to design and implement our products, giving us an extensible foundation. Object modeling and design provide a simpler transition from design to deployment. What's more, Computer Associates has a blueprint we're sharing with our client base. Through a concept we call isomorphic services, we can provide portability and system management—application services common to all our applications."

Can you give us some specific results?

"While other companies were struggling to get applications like CA-Unicenter up and running, we were able to deploy it across multiple platforms at blinding speed. Not only did we transcend traditional porting time, we used a common platform to enable our clients to deploy mission-critical applications from a management viewpoint."

What's the most important advice you can give to Object World attendees about to implement object-oriented applications?

"There are several basic guidelines that are critical to successfully deploying objects and building distributed applications. But perhaps my most useful suggestion is this: when adopting object technology, proceed with due diligence to ensure that the value of the technology matches the expense of the business investment you're making. I can't over emphasize the importance of linking OT to an organization's business objectives."

Why is Object World San Francisco the best forum for learning about objects?

"Because Object World is the central gathering place for everyone who's anyone in the world of objects. Attendees get the opportunity to hear directly from companies like theirs who are using OT to solve real-world business problems. And they'll gain a common understanding of object development in a multivendor, heterogeneous environment...one where they have the tools to move to the next generation of enterprise computing. In fact, everybody who comes to Object World San Francisco—developers and users alike—will be able to clearly focus on the business impact of OT."

Don't miss Sam Greenblatt and other OT movers and shakers at Object World San Francisco. No other OT conference offers you a broader range of subjects or greater technical depth. You can choose from 19 tutorials and 48 conference sessions—many are based on actual case studies and feature OT users and industry experts.

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OBJECT WORLD

Ready, shoot, aim

For a while there, I had the uneasy feeling of being confused about the re-engineering concept, which was not a good feeling for someone in my position to have.

After all, we write extensively about the subject and even make an annual award to the company that has excelled at re-engineering its business processes using information technology as the key driver. So of course I felt uneasy.

Not anymore. I am totally at ease with my confusion. I don't know what re-engineering is, not in absolute terms. Nor do most people, apparently. And that really should be cause for concern because the re-engineering torch still burns bright as a beacon of corporate transformation.

After almost dual-handedly launching the re-engineering thing a couple of years ago, consultants Jim Champy and Michael Hammer have already written sequels to their earlier re-engineering tomes. These latest books conclude that — guess what — re-engineering is much harder than it was first thought to be. In Hammer's words, "the human side is much harder than the technology side. It's the overwhelming issue."

This much I do know about re-engineering: most re-engineering efforts have either fallen far short of expectations or been blatantly labeled failures; the more radical approaches have destroyed corporate cultures with little or no gain realized; through all these failures and disappointments, re-engineering consultants have rung up huge fees.

I also learned from a study hatched by Ernst & Young and *CFO* magazine that two-thirds of the chief financial officers polled have come to the somber conclusion that re-engineering is "just a fancy label for conventional techniques," probably downsizing.

The poll also reported that financial overseers have found measuring the outcome of re-engineering efforts to be difficult at best; more than half have concluded that outcomes "cannot be measured reliably."

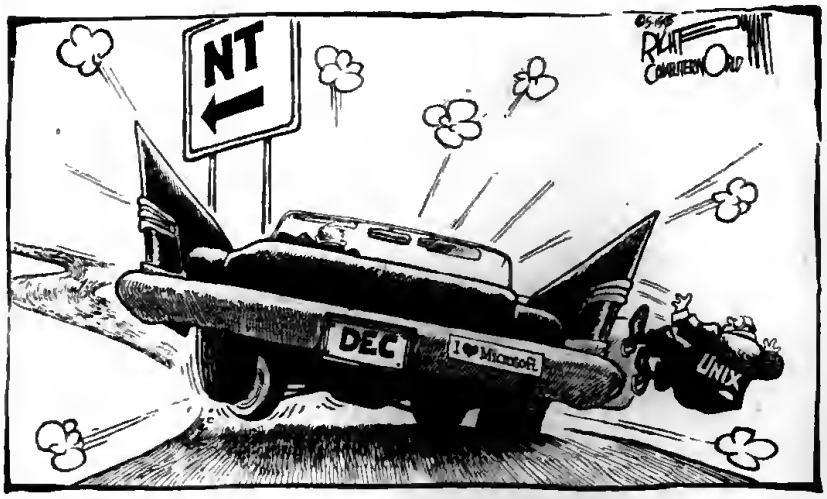
So to sum up, we have intelligent people in successful corporations willing to run the risk of ripping their companies asunder — at prodigious financial and human cost, no less — who largely don't know how to measure results, if there are any. Meanwhile, the dons of re-engineering are fessin' up that the re-engineering concept just may have been oversold — at least from the perspective of how "easy" it is.

But oh, didn't the re-engineering pitch sound great! *You'll use information technology in a way that has mysteriously eluded the organization heretofore and thereby reduce costs and cycle time and drive profits up.*

Hmmm. Come to think of it, maybe the re-engineering promoters got the idea for the sales pitch by reading the early client/server literature. We know how accurate that turned out to be.

Bill Laberis

Bill Laberis, *Editor in Chief*
Internet: *blaberis@cw.com*



Mainframes still have critical role . . .

"Political setback" [CW, April 17] sure does sound like you have an agenda. Mainframes are not dead, and they are not dinosaurs. They have been and will continue to evolve.

The best analogy I can think of is the history of the railroads in this country. Early in the life of this technology, there was no other game in town, and the railroads were arrogant and charged too much. As time moved on and technology changed, competition forced alternatives to come to market, but the railroads were and are still needed to haul the heavy freight.

You are, for the foreseeable future, going to need those big, ugly relics to haul the data because nothing out there can do that job as well. We haul the freight.

Bob Russell
State of Georgia
Atlanta

It is too bad you are so blindly anti-mainframe.

I don't think a publication such as *Computerworld* should be so prejudiced against any major segment of our industry.

Tom Stone
Dayton, Ohio

Most of the "easy" legacy applications have already been transferred to client/server architectures. What are left are the huge, arcane, mission-critical applications that I doubt anybody would pluck up the courage or be given permission to go away and rewrite. Additionally, these old systems are often not well understood by current systems professionals and are a nightmare of spaghetti code and poor documentation.

Gradually, the critical mass of functionality will tip to the workstation-client/server layer, with the mainframe moving to single-purpose functions, then to simple file server and, finally, out the door.

We have found it important to portray mainframe systems as being, for some limited time, "part of the solution, not just the definition of the problem."

Bob Christian
Charlotte, N.C.

. . . and so do mainframe skills

The notions that James Martin espouses in "Evolution of a species" [CW, April 10] should be rebutted, at least in part.

Mainframe skills never will be obsolete, as he suggests. My company still has a high demand for people proficient in Cobol as well many other mainframe skills. It is hard to believe that anybody in IS still thinks mainframers are driving taxis. We are not. We are working double time just to keep up with the demand.

And the conventional wisdom that IS technical people do not speak the language of business is untrue. We have spent the past 15 or so years coming up to speed on business jargon and the real business concerns that it describes.

Ray Kampa
Colorado Springs

What a drag

As a 35-year veteran of IBM, I'm particularly upset about IBM's failure to get software firms to develop OS/2 applications ["IBM drags feet on OS/2 pitch," CW, April 17]. This was a major OS/2 goal before I left in 1992.

Mr. Gerstner need go no further than his own subsidiary, Prodigy, to ask why they haven't developed an OS/2 version of their software. Warp comes with an OS/2 version of CompuServe, but Prodigy is available only in Windows or DOS versions. If Prodigy can't be convinced, why should other developers expend their time and resources?

Perhaps IBM should be pursuing a strategy that results in Windows application software being certified for OS/2 instead of trying to get these firms to support multiple operating systems.

Robert Wintermeier
Croton-on-Hudson, N.Y.

BEST COMPUTER NEWSPAPER 1992, 1993
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Virtual outsourcing

Paul Strassmann

Speculation about the effects of the information superhighway on work has suddenly reached a high pitch. New books such as Jeremy Rifkin's *The End of Work*, Cliff Stoll's *Silicon Snake Oil*, Danny Goodman's *Living at High Speed* and Nicholas Negroponte's *Being Digital* range from prophecy of massive unemployment to utopian visions that people will work, entertain and communicate mostly through electronic intermediating.

Speakers at symposia ponder the effects of the Internet, and daily newspapers play the Internet as headline news. Much of this fuss is entertaining, though misinformed, but it should not be taken lightly by computing professionals. Whichever sociological or economic forces will spring forth from the digitization of society, computing professionals will be exposed to those effects sooner and more intensely than anyone else.

It just so happens that MIT's Sloan School recently hosted a roundtable of distinguished executives and professors about the organization of work in the year 2020. The vision advanced by the MIT spokesman was a workplace consisting of firms with only one employee, who worked from home or in a hotel-like office. These "freelance" operators would come together only in temporary combinations.

According to the MIT vision, independent consultants would do all systems work. Work would not be outsourced to computers services corporations. Using Hollywood as a model, you would put together systems projects the way you produce movies, using temporary teams, temporary directors, temporary camera people and temporary actors working on a rented movie set. The atomized systems professionals would be connected by multimedia Internet workstations. This would allow these individuals to offer their services in an electronic auction market. The allocation of resources would then be accomplished by competition and not by "management." I have labeled this model as "Electronically Mediated Virtual Outsourcing Work."

Just in case you think the MIT professors were not serious about visualizing work in America as an adaptation of a movie production, they explored the question of whether independent individual contractors could design and manage the production of automobiles. They found it plausible.

How seriously should computer professionals take this vision of deconstructing organizations? What is the significance of such a view on careers? Will such an outlook further inhibit computer professionals from seeking personal growth within a corporate framework? Will the acceptance of a virtual, remote and freelance existence reinforce what business managers have suspected all along — that computer people are a class of employees who remain alien from the rest of the organization?

The only large-scale experiment in something like the concept of "virtual outsourcing" was the experience of the U.S. Army in Vietnam. Soldiers were randomly assigned to existing units and then rapidly rotated out of combat — but only rarely with the same comrades. Their commanding officers seldom stayed on the job for more than six months. There was never time to build up unit cohesion and team cooperation or to accumulate shared fighting experiences. Army discipline disintegrated from within because of a lack of trust among combatants. The short-term officer leaders found that when the time came for action, they had no followers.

The prophets of a wired workplace better come up with scenarios supported by already proven patterns of success.

Whether systems projects are like combat is a debatable proposition, although I find the similarities striking in many respects. I certainly reject the idea that enterprise integration, application development and cumulative experience can be achieved by computer professionals who are seen merely as plug-in, plug-out software subroutines.

The prophets of a wired workplace better come up with scenarios already supported by proven patterns of success. Year 2020 is not so far away that we do not already have excellent clues as to what works and what does not. Information systems work is a means for achieving cooperation, integration and coherence of an organization. I do not think that virtual mercenaries can deliver that.

Strassmann is a consultant in New Canaan, Conn., and author of *The Business Value of Computers* and *The Politics of Information Management* (1994).

Future IS opportunities will be found in contracting, not in-house. See **Management**, page 83.

Quenching the Chicago fire

Jeffrey Gordon Angus

Microsoft is struggling with the dilemma of having named Windows 95 for the year in which it planned to release the software. That technique works well for cars because sedans, unlike operating systems, are made by dull companies that are good at managing schedules.

The problem now is that Windows 95 is being attacked for its beta bugs. Ignoring the unfairness of attacking a beta for its bugs, the most obvious countermeasure is to polish the product until it's as bugfree as possible. This is something Microsoft has already done, to near-universal acclaim, with Daytona. But the same pundits and customers who hyperventilate about beta bugs will vent mightily about any schedule delays. So the Redmond, Wash., behemoth is completely forked (as they say in chess) — damned if they do, drubbed if they don't.

The same pundits and customers who hyperventilate about beta bugs will vent mightily about any schedule delays.

I just happen to have a couple of brilliant ideas that can pull Microsoft's fat out of the Chicago fire.

1. Immediately rename Daytona "Windows 95." Result: Microsoft can claim it delivered Windows 95 on time, and hey, Daytona already has stacked up a gaggle of rave reviews.

2. Rename Chicago "Windows 2000." Results. There are several. First, the company gets a numbered name, saving it the humiliation of admitting that giving products year-based names is a suicidal idea in the first place. Also, it gets a year deadline even a world-class procrastinator like Bill Clinton could meet. Finally, it gets a warm-fuzzy residual from the love affair America had with Wordstar 2000. Hey, maybe Micropro would give them the rights to distribute Wordstar 2000 in the box as a Notepad surrogate. While they are at it, Microsoft could get rid of Solitare and replace it with the 70s video game "Death Race 2000," the purpose of which is to drive your car over as many pedestrians as possible (a perfect metaphor for U.S. business).

3. Rename Cairo "Windows 2001" and get Arthur C. Clarke to be the official spokesman. Deliver the product in a monolith with a mastodon bone attached to the bottom like the key on a sardine can. Result. Apply the coup de grace to the concept that the numbers that modify the noun "Windows" have *anything* to do with years. Gates can claim the "95" was like the "GSX" and "ST" appellations that follow car names, just sensual enhancements that try to give the consumer a sense of excitement about something as intrinsically dull as a Bob Dole monologue.

4. Rename all future office suites after the number of megabytes an installation occupies on your hard disk. Result: This is good because no release ever gets smaller, so the numbers keep on climbing, coating the reality of feature-creep with the illusion of advancement. And it reinforces the idea that numbers such as 95 don't have anything to do with years.

That's it. The return of sanity. The end of whining and accusations. And, oh yes, don't name any more products after years, ok?

Angus is project director at The Data Works Ltd. in Seattle.

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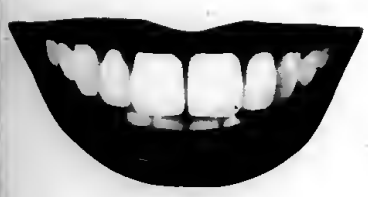

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OS/2 developers feel jilted by IBM

Campaign to help Windows developers move to OS/2 irks some

By Lisa Picarille

Some longtime OS/2 developers are feeling slightly ignored and envious of the attention and resources Windows developers are receiving from IBM to lure them to OS/2.

"There are businesses that bet their future on OS/2, and now what we hear IBM saying is, 'We are going to Windows [independent software vendors] and giving them free tools, consulting help, funding some developments and putting in APIs.' Essentially, it's been nice knowing you but . . . ," said Randell Flint, president of Sundial Systems Corp. in Seal Beach, Calif.

Smaller, but very loyal, OS/2 developers are miffed at IBM's highly publicized effort to contact the top 1,000 Windows software developers and offer to help bring their applications to OS/2.

Close to nothing

Although OS/2 developers who signed on prior to IBM's drive for big name Windows developers can get technical assistance via an annual subscription to IBM's Developer Connection for OS/2, they claim they had to pay for the Smart tool IBM is now giving away (see chart). They also claim they get little or no consulting help.

"IBM doesn't care about us and has made no effort to contact OS/2 developers and reassure us that IBM is committed to OS/2," Flint said. "If the top 1,000 Windows developers are IBM's priority, then that makes current OS/2 developers 1,001."

IBM said this is not true. "We don't forget about these people," an IBM spokesman said. "These are the people that got OS/2 where it is today, and they are helping increase the number of users every day and are responsible for making [OS/2] Warp what it is. We aren't perfect, but we care about them. And we both have the same goal — to make OS/2 successful."

But still other small OS/2 developers said they feel neglected. "We personally feel slighted," said Patti Zullo, director of sales and marketing at Software Corporation of America (SCA) in Stamford, Conn., which develops remote-access software for DOS, Windows and OS/2. SCA has been an OS/2 developer since 1989.

"I understand IBM's point to encourage more developers, and I applaud their efforts, but it's a shame that people who have stuck by IBM and OS/2 are now left in the dust. Especially when we were the ones who helped them sell copies of OS/2," Zullo said.

IBM initiatives that have long-term OS/2 developers feeling forgotten

- IBM CEO Louis V. Gestner's mandate that 100 of IBM's top executives promote OS/2 development with 1,000 leading developers
- Upcoming software development kit to ease the development transition from Windows to OS/2
- Free consulting assistance to new OS/2 developers
- IBM's $15,000 Smart tool free for new OS/2 developers
- Free technical guidance and support during development efforts for new OS/2 developers

Although some OS/2 developers are envious, they said they expect to benefit in the long run.

"I'd like to have the resources they are dropping on these other vendors, but I don't want them to not go out to the other vendors. It would be biting off my nose to spite my face," said Tony Pereira, president of Clear and Simple, Inc. in Simsbury, Conn. Clear and Simple develops tuning tools and utilities for OS/2 and helped found the OS/2 Vendor Council, an independent organization in Memphis. "I welcome new vendors, and I would much rather see the market get larger than continue to be a niche operating system," he said.

OS/2 has about 7 million users, compared with 70 million Windows users and 18 million Macintosh users. IBM will not disclose how many OS/2 developers there are but claims that more than 2,500 OS/2 applications are available.

Earlier problems

These smaller developers also said that even before IBM's full-court press to attract developers, the company was not that responsive to their needs.

"IBM comes out with the Warp BonusPaks, but the reps don't tell you how you can get in on these bundling deals or how to get money to help with advertising or anything else," Zullo said. "They just don't do anything special for us. Only if you drop out will they take notice and spend the effort to get you back."

IBM has a representative who works with several developers and contacts others on a regular basis. But some developers say they still have trouble believing that IBM is really devoted to them.

"OS/2 vendors are wooed by Microsoft all the time, and if IBM is saying 'We don't care whether you're here,' it makes it hard to come up with a rational business case to continue as an OS/2 developer," said Flint, who is weighing all his options, including Windows development.

Try a little tenderness

By Mitch Betts

New research on keyboard ergonomics confirms what many have suspected all along: Users who have big problems with repetitive stress injuries (RSI) strike the keys too hard.

In fact, the study of people who do word processing found that *all* of the research subjects tended to "strike the keys four or five times harder than necessary," said Michael Feuerstein, a researcher at the Uniformed Services University of Health Sciences in Bethesda, Md.

Furthermore, "those with severe [RSI] symptoms strike the keys significantly harder than those with minimal symptoms," he said.

The professor of psychology and preventive medicine cautioned that the study does not prove a causal link between keying force and RSI, although "the findings suggest an association."

The study seems to confirm the obvious, but it is important nevertheless because the RSI field has been hampered by a lack of scientific research, according to Robert F. Bettendorf, executive secretary of the Office Ergonomics Research Committee in Manchester Center, Vt., which funded the study.

Application management

Failing to plan could prove costly

By Steve Moore

Plan now or suffer later.

Many information systems managers have been lulled into believing that any distributed computing bottleneck can be eliminated simply by throwing extra processing power or network bandwidth at it.

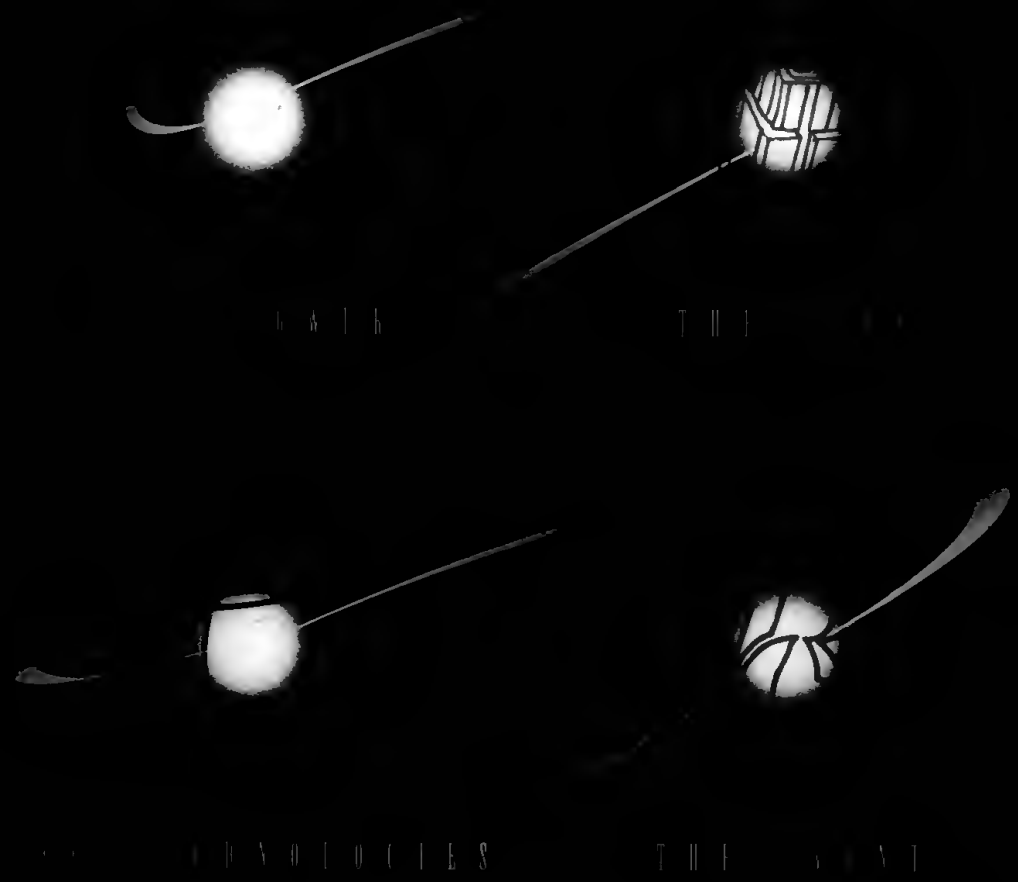
As a result, users typically have chosen client/server applications purely for their ability to meet business needs without determining whether they use computer or network resources efficiently.

But in the future, users and analysts said, resource-hogging multimedia applications will bring poorly planned distributed computing environments to their knees, and application management will become a burning issue. So some forward-thinking users are using network modeling tools to prepare for the not-too-distant day when video and high-resolution graphics will be the province of all, not just power users.

"We're very concerned about what will happen when we start putting multimedia applications on our network," said Pompi Malik, MIS director at Brewers Retail, Inc. in Mississauga, Ontario. But while some multimedia applications deal with multiple servers simultaneously, "no tools we've seen so far allow us to model those types of applications to determine how we can cost-effectively deploy them," he said.

Randy Smith, an IS project manager at United Parcel Service, Inc. in Mahwah, N.J., said that while hardware capacity until now has outstripped the

Failing to plan, *page 44*



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COMPUTERWORLD

·*Leadership Series*·

THOMAS H. DAVENPORT *on*

Transforming the CIO

A DAY *in the* INFORMATIO

Too few CIOs appreciate that it is information, not technology, that solves business problems. It's time to make this transition. *By* THOMAS H. DAVENPORT

WHAT IS THE CHIEF INFORMATION OFFICER'S ROLE? Ideally, a CIO should hold forth over all information, define the information to be used in the organization; set information policy and standards, and maintain management control over all information resources — not just the information on computers, but the information that's found in file cabinets, libraries and in employees' minds.

When Bill Synnott, former CIO of Bank of Boston, first described the CIO concept in the early 1980s, he had this type of information-oriented role in mind. In his writings on the issue with consultant Bill Gruber, the word "technology" seldom appears. Today, however, technology is the focus of the job. There are many CIOs who have at least partial control over information technology, but very few have dominion over all information resources.

We could debate the reasons why the CIO role became, in effect, the "CITO" (Chief Information Technology Officer). It may be more constructive, however, to address the kinds of actions that an information executive should take to merit the CIO title.

Let's imagine that Alan Atkins, the CIO of SciMed, a large, successful manufacturer of medical devices, had a revelation a few months back. As he explains to his boss, the Chief Operating Officer, why the new order processing system requires the purchase of a minicomputer, he swings into a spirited comparison of transaction rates between alternative machines. After a few minutes, he recognizes the telltale glaze in his boss's eyes and knows that he has lost him. So Atkins tells his boss that he will focus on only information, not technology.

Atkins' boss doesn't really know what he means, but relieved that he can avoid further technology discussion, he consents to a trial period of Atkins' new role. He and Atkins had been evaluating proposals to outsource data center management anyway, and he had wondered what Atkins' role — if any — would be after the deal was done.

Atkins sets about transforming himself into the one manager at his firm that has the greatest focus on information. The effect is invigorating: As his new job evolves and expands, he begins to enjoy his work more.

What follows is a typical page from Atkins' calendar six months after the metamorphosis. A short "reality check" follows each entry, comparing the fictional activity with what real, live information managers are beginning to do.

Leadership Series

FUTURE *of an* N EXECUTIVE

8:00 a.m.
WRITE DAILY INFORMATION SUMMARY

As he does every day, Atkins begins by writing his Daily Information Summary, a page-long briefing for all SciMed's employees. The Daily Information Summary typically covers major sales from the previous day, important market or regulatory developments, and changes in product status or availability. The summary not only reports the figures, but also interprets them. Atkins E-mails the summary to all employees and also posts a printed copy on the bulletin board in the main office.

This morning Atkins writes about a major sale to a large hospital chain, and commends the sales team involved in the deal. He informs everyone in the company of good news and bad news relative to products. One product has been approved by the Food and Drug Administration and another is being recalled by SciMed for a quality defect. The other topic for the day is competitive intelligence; Atkins reports that one major competitor will introduce a new fetal monitoring device in the next few days, and he presents strategies for blunting the competitive impact of the new device.

This Daily Information Summary is actually performed by Will Pape, CIO at Verifone, the dominant manufacturer of transaction verification devices. Verifone is perhaps the best example of a "virtual company." Pape lives in Santa Fe, New Mexico; the company is based in California and has 2,000 employees worldwide. The daily summary keeps the far-flung employees well informed and helps to build cohesion.

9:00 a.m.
REVIEW ELECTRONIC MEMORY SYSTEM

Atkins tries to do this task every morning. In his old job, EMS stood for "electronic mail system." Five months ago, he announced that it would henceforth be the "Electronic Memory System." It now contains several different databases of SciMed technical information. The EMS includes descriptions maintained by all employees of what they are working on and the types of expertise they possess, as well as discussion databases on fast-changing matters of fact and opinion.

When he initiated the EMS, Atkins sought out "stewards" for each database. These are employees who accept responsibility for structuring the categories, pruning items that are no longer useful and stimulating other employees to participate. Still, he tries to monitor the quality of the system himself.

Today he notices that no new entries have been added to the Customer Intelligence discussion in the past two weeks, and that no one in the field has contributed for a month. He sends messages to the database's owner and to the VP of field sales to try to spark some action. One of his suggestions is to add information exchange to the performance evaluations of field sales personnel.

A CIO must be focused not only on the infrastructure for information exchange of this type, but also on the content that is exchanged and the behaviors of those who supply and use information. A few CIOs are now playing this role, particularly at consulting firms. Brook Manville at

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PA-RISC POWERED

McKinsey and Co. is constantly trying to stimulate participation in his firm's "knowledge network." Ellen Knapp at Coopers & Lybrand and John Peetz at Ernst & Young, both spend considerable time on creating and maintaining their firm's knowledge processes and on using Lotus Notes to share knowledge and information. Such work is not restricted to professional service firms, however. Blaine Horst, CIO at Boston Chicken until 1994, then became the full-time Director of Knowledge Deployment. A key area of focus is how to educate employees quickly on new product and service offerings.

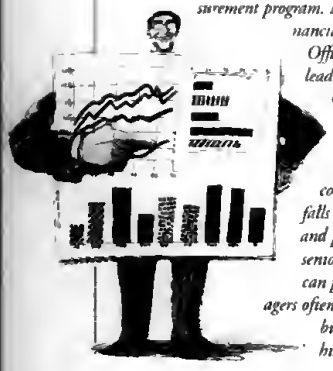
10:00 a.m.
PREPARE FOR EXECUTIVE COUNCIL MEETING

An important aspect of Atkins' new role involves collecting and summarizing key management information for discussion at the monthly Executive Council meetings. This is an important and difficult job, involving the following tasks:

- Working with senior managers to determine what the important measures of performance are for a given firm;
- Devising ongoing measures of the items that are meaningful and practical;
- Collecting the information monthly or weekly (some measures are not generated by automated systems);
- Reporting the measures at management meetings and supplying explanations when necessary.

Today Atkins is deciding what quality measures to include in the report. He sifts through various measures of product quality — performance, features and reliability — but also believes that service quality — reliability, responsiveness and even empathy — should be addressed.

☛ *At American Express, 10 measures are monitored in a "Health of the Franchise" program. But these programs are often missing a key executive to create and run the measurement program. Most of the measures are nonfinancial, so the Chief Financial Officer may not be well-suited to lead these efforts.*



General Motors' Vince Barabba, CIO and head of market research, performs a similar function to that of Atkins. He collects information about shortfalls on predetermined measures and presents them at a monthly senior management meeting; one can probably imagine that managers often try to convince him that their business area is not deserving of his attention.

11:00 a.m.
PLAY WAR GAMES

One of SciMed's business units is introducing a new product line over the next several months, and part of the marketing plan is a detailed analysis of the competitive environment. Today "war games" are scheduled in which Atkins will play the role of a customer who is evaluating proposals from various firms, including SciMed.

Atkins recently incorporated the Competitive Intelligence (CI) function into his organization. In the past, CI was a Marketing function that typically issued reports for managers to read. Atkins and his Competitve Intelligence Director discussed the fact that little attention seemed to be paid to the reports. In brainstorming alternatives, they came up with the idea of competitive "war games," in which managers would play the role of various competitors and would present their products and capabilities to other managers playing the role of customers. The hope was that the participants would "engage" in the information because they had to understand it well to play the game.

The early war games have been a big success. Managers study the competitive data intensely in order to perform their roles. Some participants got so involved in the exercise that they refused to speak to "competitors" for some time after the game had ended. Atkins and the CI Director learned that the role playing helps dramatically to make the information engaging, but there is a cost: The exercises are difficult to prepare, and the relatively small amount of information to be transmitted using these methods has to be chosen carefully.

☛ *This idea was pioneered by Jane Linder, an information, market research and strategic planning manager for a division of Polaroid. She and a supportive division president created the war games exercise for division managers and professionals. The marketing-oriented exercises were a big success, and now Polaroid is assessing the use of information engagement approaches for other types of information, including financial and quality. Pfizer Pharmaceutical's Vita Cassese is another example of a CIO who has taken over the management of market research and competitive intelligence.*

2:00 p.m.

FOSTER INFORMATION SHARING

ATKINS HAS THIS MEETING TO "BROKER" INFORMATION between the Product Engineering group, headed by Paul Hanson, and the Customer Service organization, of which Diane Villiers is vice president. The company has a long history of poor information sharing between these functions.

At today's meeting, Atkins asks Villiers to explain to Hanson the types of information that Customer Service has available. As he expects, Hanson expresses great interest in the information. Atkins also asks Villiers to discuss the product classification scheme that Customer Service recently developed and now uses as a replacement for the corporate standard. He tries to dissuade Villiers from continuing to use this proprietary system.

☛ I'm sure that this sort of information brokering happens all the time in private. However, the first CIO I found who was consciously brokering information was Larry Ford, then of IBM. Ford felt that this work was particularly important when attempting to improve cross-functional business processes. However, many other CIOs have realized that information sharing cannot be accomplished through the creation of data models and architectures alone. At American Airlines, for example, simple models of information use were created to get managers together to discuss information they need. The brokering model acknowledges that information sharing across functions and units happens only through personal negotiation and intervention.

4:00 p.m.

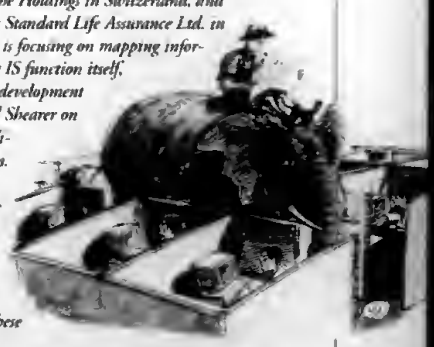
REVIEW PROGRESS ON CUSTOMER INFORMATION MAP

SINCE INFORMATION IS PERVASIVE IN ORGANIZATIONS, Atkins feels the need to focus his management efforts on particular types of information. The first component of his "information strategy," as he calls it, is to address SciMed's customer information. In the old days, he would have asked his Data Resource Manager to create an information architecture or model of customer information. Atkins realizes now, however, that none of the models were ever constructed exactly as planned. Therefore, there's no guide to where the information actually resided within the organization.

A few weeks earlier, Atkins had decided to create a "map," rather than a model, of customer information. The map shows the major locations throughout the firm to find customers. It points an information requester to the major repositories of the various types of customer information that exist, including information about consumers, businesses and distributors. It has names and E-mail addresses of employees and information suppliers who have information on customer buying behavior, customer satisfaction surveys, customer complaints and even customer focus group transcripts.

At this meeting, Atkins presents a prototype of the customer service map. It's a great success.

☛ The first information map I observed was for market information at IBM, though it was not created by a CIO. Since that time, however, several CIOs have commissioned maps for selected domains within their information environments. These include Bob Walker at Hewlett Packard, Clive Sinclair at Hoffman-La Roche Holdings in Switzerland, and Simon Shearer at Standard Life Assurance Ltd. in Scotland. Walker is focusing on mapping information about the IS function itself, Sinclair on drug development information, and Shearer on competitive intelligence information. In each case, the goal is to improve awareness of and access to information, and thereby improve performance in these business processes.



ALAN ATKINS is a bellwether for future CIOs. Too many executives are dissatisfied with their information support, and too many senior managers feel that their CIOs are obsessed with technology. In many cases, the technology management can be successfully outsourced. For these reasons, CIOs must spread their wings and take leadership of information management.

ABOUT THE AUTHOR

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Apple helps IS put out technical fires

By Lisa Picarille

Users praise Support Professional Solution Series

A few months after updating its technical support for Fortune 1,000 information systems and help desk managers, Apple Computer, Inc. is receiving high marks from users for its Support Professional Solution Series.

"It's Apple's support team in a box," said Dorian Cougias, lead consultant and founder of Network Frontiers, Inc., a San Francisco-based network consulting, training and authoring firm.

The Support Professional Solution Series, delivered to users in February, was designed to improve technical support and reduce training costs at large corporate sites.

The series comes in two versions. The 700 series costs between $3,400 and $6,000 per year, depending on the number of people supported. It includes telephone support from Apple's senior support engineering staff, with Apple promising to respond to calls within 60 seconds; a how-to planner for creating a technical support staff; expanded electronic-mail capabilities for receiving Apple product notices; access to an online database of support material; and access to all of Apple's technical software.

The 500 series, which costs between $2,000 and $4,000, includes everything in the 700 series except the phone support.

By providing enhanced support for Macintosh- and Windows-based help desks, Apple has broadened its appeal. The previous version, known as the Support Professional Program, only supported help desks with Macintosh computers and Apple's PowerTalk E-mail software.

Steve Linstead, research engineer at Johnson Controls, Inc., a manufacturing company in Milwaukee, said he likes the multiplatform support. "Our reasons for buying were not problem-based, but an offshoot of a project that allows us to tie together our technology information distribution umbrella — which includes databases, operating systems, help desks and technical support — and deploy it not only to our group but to any client, whether it's the Mac, Windows, Unix or" Silicon Graphics, he said.

"We heard about it, bought it and love it."

— Steve Linstead, research engineer, Johnson Controls

For other users, the comprehensive support databases that can be searched via Apple's AppleSearch technology were the impetus for purchasing the support program.

"This is the most wonderful comprehensive database of technology support material seen in a long time. It's absolutely phenomenal," said Cougias, whose consulting firm has also implemented the Support Professional Solution Series for its network of 18 PCs, 12 of which are Macintoshes.

Cougias said he "appreciates the level of phone support [because] they don't treat you like you're just another user. They treat you like a professional who knows what he's doing. When I ask a very technical question, they don't go, 'OK, now do you know what the chooser is?' They start from the level of knowledge I'm at and don't give you some h.s. answer."

One IS manager at a large investment banking firm on the East Coast who asked not to be identified said he, too, appreciates the immediate and thorough response of Apple's technical support staff.

"All day I put out technical fires," he said. "Before the Support Professional Solution Series, I felt like I was armed with only a squirt gun; now I have a whole fire truck."

Briefs

Packard Bell soars to the top

Consumer market leader Packard Bell Electronics, Inc. has zoomed to the top of the U.S. PC market. According to preliminary data from market research firm International Data Corp., Packard Bell shipped an estimated 591,000 units in the first quarter of this year, up 37% from the previous year. Meanwhile, Compaq Computer Corp., which finished last year as the king of the desktop market, was second last quarter with 530,000 units shipped. Finishing at third for the quarter was Apple Computer, Inc. with 477,000 units. Former market leader IBM came in fourth with 410,000 units shipped.

IBM makes buy

IBM signed a letter of intent to acquire the assets of General Electric Co.'s multivendor computer maintenance business, an Atlanta-based unit that focuses on PC networks. The companies declined to disclose the purchase price or revenue of the maintenance operation. The deal is expected to close late next month, and IBM said it expects to hire a majority of the unit's 1,300 employees.

Japanese firm joins forces

Teamed with two U.S. partners, a storage device subsidiary of Japan's Matsushita Electric Industrial Co. has developed a floppy drive and disk that can store 120M bytes of data and offers backward compatibility with current 3½-in. disks. Matsushita-Kotobuki Electronics Industries Ltd. said it will begin shipping the system to OEM customers this year.

Database management

Houston Astros score with system that tracks ballplayers' injuries

By William Brandel

Once, in an age before artificial turf, free agency and the designated hitter, all a major-league baseball team needed to become a pennant contender was power hitters, strong pitching and a smart manager. Of course, that was a time when Republicans were saying, "I like Ike."

Today, baseball is more a game of statistics, and teams are tapping into every possible angle to supplement the raw skills of their hitters and pitchers — looking for ways to improve their team batting average, raise their on-base percentage or lower their pitching staff's ERA.

Now, the Houston Astros are using PC technology to improve their chances of fielding a healthy roster throughout the brutal 100-plus game season. The Astros information systems staff is using a Microsoft Corp. Access 2.0 database to track player injuries throughout its six minor-league teams.

"The trainers approached us last year and said that they were having a problem in tracking player injuries all through the Astros system," said Chris Jackson, PC network administrator for the National League team. At that time, the Astros' coaches and trainers used hand-written notes to record injuries and track what kind of treatment the players received.

The paper-based system, widely used throughout major league baseball, was troublesome to say the least. First, because many players sign a contract when they are 18, the odds are high that they will suffer some sort of injury as they hump around the minor leagues for the next six to seven years or even longer. It is easy for a team to lose track of a player's tendency for injury.

In addition, the Astros, like other major-league ball clubs, could leave themselves open to legal problems if they do not carefully track a player's injuries and/or treatment.

Setting the pace

Even more important, managers and trainers need to pace an injured player's return to the lineup. Without accurately knowing the player's history, a team could make the player's injury worse by playing him too soon. On the other hand, they could lose their competitive advantage by keeping a good player off the field.

To improve this process, the club turned to the Access database to track players' injuries and treatments. Most employees in the Astros' front office are equipped with notebook computers, so trainers can access or update records in the Houston-based database each night.

Now, if a player breaks a bone, it is entered into the database. If he receives an ice pack or an X-ray, the information goes into the database. And should a player wake up one day to find he has been promoted from a single-A level team to a double-A team, his record is automatically uploaded and accessible to the new team.

This system, which took Jackson six months to build, has made it possible for trainers and managers to receive up-to-date information on any player's condition. And sharing the application ensures that everyone in the organization accesses the same information.

"I couldn't tell you in dollars and cents terms if there is a direct monetary return on this system. But if it keeps your talent healthy, then it is definitely worth its cost," said Pat Murphy, systems analyst for the Astros.

In that sense, the application could be considered mission critical for the Astros. In baseball, teams that win can make money, and they cannot do that if the organization is hobbled with injuries. For instance, the 1993 World Champion Toronto Blue Jays, dropped from the top of the American League East to near the bottom from injuries to its pitching staff.

Until the season is over, it will not be clear whether the PC database system gives the Astros an edge in the race for the pennant. However, as of last week, the Astros were in second place in the National League Central Division.

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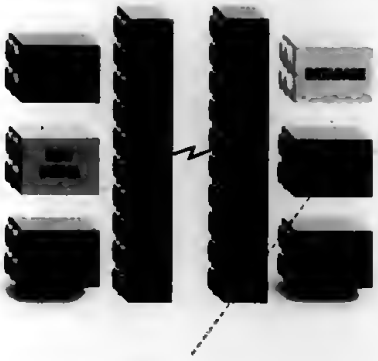

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Screen prices down 40%

User preference for cheaper technology cited

By Rob Guth
YOKOHAMA, JAPAN

The Electronic Display Exposition held here recently gave a snapshot of an industry bracing for change and headed for a price war, the fallout of which may have far-reaching effects for end users.

The presentations and discussions by Japanese thin film transistor (TFT) LCD makers focused on the future, with heavy emphasis on non-notebook PC applications for high-end active-matrix screens. The vendors said that the era of high prices and tight supplies may be over.

"I believe 1995 will be remembered as a very critical year for TFT LCD makers," one industry official said. "The tables have been turned. In the past, the makers of the panels made the decisions — what size and what price — and now these decisions will be made by users."

Banking on a huge market for active-matrix screen notebooks, Japanese vendors last year began massive production ramp-ups expected to be complete by late this year. But after committing some $2.4 billion to new production lines this year alone, vendors are waking up to a harsh reality: For now, end users prefer cheaper passive-matrix screens on their notebooks.

The result has been that prices for 10-in. TFT LCDs have plummeted about 40% since late last year, a sign that "the price war has already started," said Hiroshi Shiba, associate senior vice president at NEC Corp.

To $830 and below

In the current round of negotiations between screen makers and their PC vendor customers, prices for 10.4-in. TFTs, which just months ago topped $1,200, are now hovering between $830 and $900, an industry official said. "But some vendors have offered much lower prices than that," he added.

Although makers of both types of screens believe the multimedia demands of future systems and software will spell victory for TFTs, the preference for passive-matrix screens will continue well into 1997, officials said. Thus screen makers have embarked on a desperate search to find a non-notebook PC "killer application" for TFT LCDs.

Guth writes for the IDG News Service's Tokyo bureau

Failing to plan

CONTINUED FROM PAGE 39

ability of applications to take advantage of it, that cushion may rapidly dissipate at companies that are "storing video and graphics on servers and distributing that to widely spaced clients." Similar problems await those whose software mix "includes a heavy dose of horsepower-hogging multimedia applications," Smith said.

Analysts said application management issues are likely to garner executive-suite attention. "If I were an executive, I'd sure think it was important to know if a new application I was going to buy was a resource hog compared to another, and I'd be willing to fund my [IS or network management] group to find out these things," said Jill Huntington-Lee, principal consultant at Brandywine Network Associates in Cinnaminson, N.J.

> Ultimately, application management tools may enable users to directly compare the performance of competing applications

While the boss might not understand Ethernet, "he knows what his customer order-entry system is called, and he can understand when someone says it's not working as well as another [similar system] would," she added.

Ultimately, application management tools may enable users to directly compare the performance and resource use of competing applications, both on the desktop and across networks. But because users are unlikely to have such tools in the next year or two, vendors are not yet worried that users will rank applications in order of efficiency.

"Right now the ability to monitor and understand application behavior is so crude that [tool vendors] are not ready to step up and build the right kinds of metrics to compare applications," said John McConnell, president of McConnell Consulting Co. in Boulder, Colo.

The missing pieces, he noted, include better measuring and monitoring capabilities in operating systems, better instrumentation in applications and the ability to correlate disparate information about the way any particular application affects client machines, servers and networks.

The problem will only get tougher as the industry moves from first-generation client/server applications to highly complex ones that are split into multiple tiers over a network and must be viewed as "a continuum over the client, any intermediate nodes and the server," Malik said.

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Gateway 2000, Inc. has announced P5-120XL, a new system in its all-Pentium line of products.

According to the North Sioux City, S.D., company, the system is based on Intel Corp.'s 120-MHz Pentium chip and features 16M bytes of standard memory and 256K bytes of cache.

The high-end P5-120XL system features a quad-speed CD-ROM, a 1.6G-byte hard drive, a 17-in. monitor, 64-bit video and 2M bytes of video RAM.

The P5-120XL costs $3,999.

▶ *Gateway 2000*
(605) 232-2000

InfoImaging Technologies, Inc. has announced 3D Fax, software for information transmission by fax.

According to the Palo Alto, Calif., company, 3D Fax encodes digital files as a highly compressed and formatted image. As much as 40K bytes, or 30 pages, can be compressed into a single page. This image is then sent to a computer or fax machine. The received image is scanned into another computer with a 3D Fax Read Module and is restored to its original form in the application in which it was created.

3D Fax can transmit documents with color graphic images, digital audio and video files as well as multimedia files over regular telephone lines. The compressed data can be sent from a computer via a fax card or fax modem directly to another computer with fax capabilities.

Pricing for 3D Fax starts at $99 per package.

▶ *InfoImaging Technologies*
(415) 960-0100

Janesway Electronics Corp. has announced Print Screen 2.0 for Windows.

According to the Mount Vernon, N.Y., company, Print Screen 2.0 for Windows lets users print everything on any Microsoft Corp. Windows, Windows NT or Windows for Workgroups screen by pressing Print Screen. It includes an Auto-Save function, which saves the screen to a Windows-readable .BMP file. It also includes reverse-image and stretch-screen features.

Print Screen 2.0 for Windows costs $20 for a single-user license.

▶ *Janesway Electronics*
(914) 699-6969

HavenTree Software Ltd. has announced EasyFlow 2.0 for Windows, charting and diagramming software.

According to the Fineview, N.Y., company, EasyFlow 2.0 for Windows is a multifaceted work tool capable of creating a range of tables and graphs from organizational flowcharts and chemical process diagrams. It is cross-platform compatible and swaps files with EasyFlow for DOS and EasyFlow for Macintosh.

EasyFlow 2.0 for Windows requires Microsoft Corp.'s Windows 3.1, a 386SX or higher processor, 4M bytes of RAM, DOS 3.1 or later and a hard disk with 4.5M bytes of available space.

EasyFlow 2.0 for Windows costs $199.

▶ *HavenTree Software*
(613) 544-6035

Cardiff Software, Inc. has introduced Teleform 4.0 for Windows, automated forms processing software.

According to the Carlsbad, Calif., company, the product includes Cardiff's Tri-CR, which uses three recognition technologies — artificial intelligence, fuzzy logic and advanced analysis procedures — to accurately read hand-printed information in an automated forms processing environment.

Teleform 4.0 for Windows interprets handwriting, machine printing, bar coding and optical mark recognition bubbles on completed forms entered by fax or scanner.

Pricing for Teleform 4.0 for Windows starts at $1,495. It is sold in single-user and multiuser packs.

▶ *Cardiff Software*
(619) 931-4530

Sarasota Computer Associates, Inc. has announced Text-Pro, a text management tool.

The Sarasota, Fla., company said Text-Pro is a text tool utility with a 100,000-word dictionary for Numera Software Corp.'s Visual CADD users. The product lets users check spelling and make changes to selected text on-screen, making text management in Visual CADD more flexible.

Text-Pro costs $79.

▶ *Sarasota Computer Associates*
(813) 923-2782

Product shorts

Axent Technologies has announced OmniGuard/Enterprise Access Control for PCs. It helps defend Intel Corp. architecture-based PCs and notebooks against unauthorized access by internal and Internet users. Cost: $185. Axent Technologies, Rockville, Md. (301) 258-2620. . . **Baseline Data Systems, Inc.** has announced Info Accelerator, a contact manager and personal information manager that runs inside Microsoft Corp.'s Word for Windows, Novell, Inc.'s WordPerfect for Windows and Lotus Development Corp.'s Ami Pro. It installs a pull-down menu on the word processor's tool bar and includes contact Mail Merge features. Cost: $100. Baseline Data Systems, Torrance, Calif. (310) 214-8528.

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AIX users delay 4.1 move

Satisfied IBM customers say upward migration not worthwhile

By Jean S. Bozman

Nine months after it was announced, a major release of IBM's Unix operating system has yet to make an impact on the AIX user base, according to users and industry analysts.

IBM AIX 4.1 is the first major rewrite of IBM's Unix system since its introduction on IBM RS/6000 workstations in 1990. But users said they feel comfortable with the current AIX 3.2.5, which is stable and reliable, and see no great advantage to migrating right away.

Although AIX 4.1 has a number of new features, including faster installation, a better user interface and lower memory requirements (see chart), many users said they can live without them — for now.

"We're still looking forward to it, but we haven't found a real driving need to do it," said John Shiels, vice president of information systems at J. M. Huber Corp., a manufacturing and energy company in Edison, N.J. The company's 20 RS/6000s worldwide are taking over some applications that previously ran on an IBM ES/9000 mainframe. All of the RS/6000s still run AIX 3.2.5, Shiels said.

No choice

However, one class of customers must use AIX 4.1.

Users who purchased IBM's symmetrical multiprocessing (SMP) RS/6000s, introduced last fall, need AIX 4.1's new SMP support. However, the slow growth of SMP RS/6000 server sales may be holding back AIX 4.1 use. Many users are waiting for IBM to upgrade the SMP server's PowerPC 601 chips with more powerful PowerPC 604 chips, which are scheduled to ship around midyear, analysts said.

"Some people are buying [the SMP server] to evaluate it and to develop their applications on it," said Richard Partridge, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y. "But I'd say those are the early adopters."

Good Guys, Inc. in Brisbane, Calif., last December bought one of the new SMP machines — an RS/6000 J30 dual processor — for a data warehousing application. That machine runs AIX 4.1. But Good Guys' five other RS/6000 servers are all high-end uniprocessors and run AIX 3.2.5, said Roy Dodd, MIS director at the electronics goods retail chain. The RS/6000s run applications for inventory control, employee attendance, commissions and sales.

Dodd said he does not wish to affect production applications by migrating to AIX 4.1. "It wouldn't take that long to put it on, but I'd have to do it over again five times," he said.

"I don't really have a business need to move yet," Dodd said. "I can coast along like that until a future release." Although he said he needed 4.1 for the SMP machine, he added that he is still looking for other types of features in future AIX releases. Topping that wish list, he said, is built-to systems management software that would mimic the functionality of mainframe systems software. The company still uses an IBM ES/9000 mainframe.

With the tide

Robert Hollebeck, professor of physics at the University of Pennsylvania, is using AIX and 30 RS/6000s as the basis for a cluster of distributed computers. The university site has already begun installing AIX 4.1 on some early-release RS/6000s based on the PowerPC 604, and Hollebeck said he hopes to migrate all the machines to AIX 4.1 as soon as possible.

"The primary motivation for us is to remain current," Hollebeck said. "We

AIX, *page 49*

STAR LIGHT, STAR BRIGHT ...

IBM's AIX 4.1 wish list

What it has	What users wish it had
• Support for symmetrical multiprocessing RS/6000 servers.	• Better system administration tools.
• Quick installation.	• Support for IBM's SP/2 parallel processors.
• Operating system that requires less memory.	• Support for the X Consortium's X11R6 X Window System.
• Support for the Common Desktop Environment (CDE) icon-based GUI for Unix desktops.	• A "dot" AIX 4.1 release with full CDE, due midyear.

Helping hand

IBM is working on a three-phase migration program to get the AIX user base to move to AIX 4.1, said Donna Van Fleet, vice president of AIX systems development at IBM's RS/6000 division in Austin, Texas.

The first step is to get database vendors to port their software to AIX 4.1, and that is nearly done, Van Fleet said. The second is to get application vendors to port their software, and that is still happening at IBM porting centers worldwide. The last is to convince users that AIX 4.1's benefits are worth the work of migrating. By March, IBM was shipping system utilities in AIX 4.1 that handle much of the migration automatically, Van Fleet said.

IBM claims that migrating to AIX 4.1 can be done in a few hours or a few days, depending on the number of machines affected.

But analysts said the rollout could take longer than that. Users must be convinced that most off-the-shelf applications will run with AIX 4.1 and that IBM has tuned AIX 4.1 for high performance.

"They're working very hard to try to get it adopted as quickly as possible," said Scott Winkler, vice president of operating systems research at Gartner Group, Inc. in Stamford, Conn. "The bottom line is they need all their software vendors to come along with them, and that takes time. It will take about a year for the majority to come along." — *Jean S. Bozman*

Client/server vendors target Windows NT

By Rosemary Cafasso

Although Microsoft Corp.'s Windows NT has yet to win overwhelming approval from client/server users, several applications vendors recently revealed their plans to nonetheless march forward with ports for the operating system.

Executives from top client/server software providers, including SAP AG, recently acknowledged that NT has had a slow ramp-up. But they are betting that NT is gathering momentum from the additional systems management and applications that have recently become available for it and will port their client/server applications to it, they said.

Meanwhile, users and analysts said it will still take a while for NT to become solidly established in the client/server applications arena. Asked if he would evaluate NT for client/server applications, Mike O'Dea, a supervisor of financial systems at Ameritech Corp. in Chicago, said, "We might."

O'Dea, who uses Unix-based software, said, "There is no reason to swap anything right now. I haven't heard enough good things about NT to consider it right now."

"It's really only the last four or five months that momentum has picked up," said Michael Goulde, an analyst at Patricia Seybold Group in Boston. "It seems that NT is winning some accounts, but there's a gap between signing the purchase order and applications in production. Implementations aren't going to really start showing up until late in the year."

What's next

Vendors have revealed the following plans:

- An official from SAP AG said NT will play a pivotal role in its plan to sell its R/3 financial software to smaller U.S.-based companies. Paul Wohl, vice president of worldwide marketing, said the company would ship by year's end an R/3 "lite" that will be available first on NT.
- Dun & Bradstreet Software confirmed it will ship NT versions of its full line of client/server applications beginning next month. Until now, it has supported NT only in its client/server decision-support software.
- Computer Associates International, Inc. recently said it is readying the following applications for NT: CA-Manman manufacturing software and the CA-HRISMA human resources package, both due to ship to early users by year's end, and CA-Masterpiece financial modules, to roll out in the first quarter of next year.

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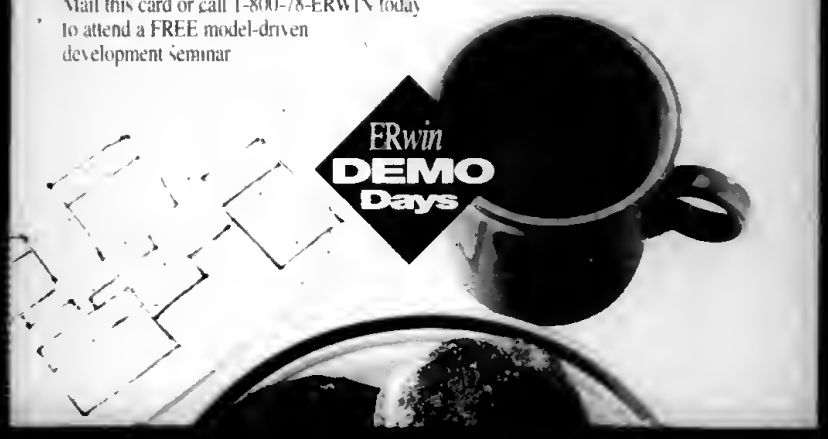

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Novell comes through with requester

NT connectivity software late but on the mark

By Laura DiDio

Better late than never.

That is the attitude of many users as Novell, Inc. readies the release of its long-awaited 32-bit client requester software to provide connectivity between NetWare file servers and Microsoft Corp Windows NT workstations.

Novell will deliver the NetWare client requester for Windows NT workstations as a software upgrade on its CompuServe NetWire forums within three weeks, according to Willy Donahoo, Novell's director of marketing, and Dawn Drake, senior product manager for NetWare clients.

"The NT client is designed to support all NetWare servers from 2.x to 4.1, including [NetWare] Directory Services (NDS). Any of the delays we've experienced in delivering the requester were to make sure we addressed all our customers' issues," Donahoo said.

Lots to offer

The feature set of the NetWare client requester is "very robust," Drake said, and incorporates full support for basic file and print services and the ability to access all the NDS capabilities of NetWare 4.x servers from Windows NT workstations. Novell has also incorporated advanced features such as a full 32-bit NetWare administrator, an administration utility that eases management chores and requires fewer people to monitor enterprise networks

Beta users of the NetWare client requester said the third and final test version of the software provides a full range of connectivity features and is stable as well.

"The final beta version of the Novell requester for Windows NT is a dream," said Joe Mohen, chief technical officer at Prognet Corp. in Mitchell Field, N.Y., a third-party software developer. "We've been using it since the end of March, and it's very reliable."

Mohen said this is in sharp contrast to the first two beta releases, which Prognet removed because of "too many bugs that crashed the file servers."

Mohen and Steve Lopez, manager of network operations at the National Board of Medical Examiners in Philadelphia, concurred that the requester's ability to allow Windows NT workstations to access NDS in NetWare 4.x is especially crucial to their mixed environments.

"It buys me the ability to define my Windows resources as branches on the NDS tree and easily toggle back and forth between the Microsoft desktops and Novell file servers," Lopez said.

Despite all the hoopla surrounding the imminent release, Microsoft actually beat Novell to the punch by shipping its own requester, which it calls a redirector, six months ago. Client Services for NetWare (CSNW) links the NetWare and Windows worlds.

There are some salient differences between the Microsoft and Novell implementations, users said.

"Microsoft's redirector contains a good set of utilities and tools. Right now, though, it's missing support for NDS in the NetWare 4 environment, and that's a big gap," Mohen said.

Mike Nash, Microsoft's group product manager for Windows NT Server in Redmond, Wash., said his company "is currently working on adding support for NDS within its NetWare redirector."

"Customers have asked for it, and we think it's important. We don't have a firm availability date, though," Nash said.

By the same token, CSNW offers support for high-speed RISC workstations, such as the PowerPC or Digital Equipment Corp.'s Alpha workstations, which deliver faster desktop performance. Novell does not support RISC workstations.

Two notable features that will not be in Novell's initial requester are a log-in script capability and a so-called Application Launcher.

The log-in script utility automatically configures the user's desktop and eliminates the need for network managers to manually set up workstations. Log-in script functionality "will follow in 30 to 60 days after the requester ships and will be available as a free add-on piece of software," Drake said.

The Application Launcher is a software utility designed to automatically browse the network for a user's applications. It makes all necessary connections, updates transparently to the end user and displays the applications that are available, Drake said.

WINDOWS T

Microsoft and Novell each has its own version of redirector/requester software to provide connectivity between the Windows NT desktop environment and NetWare file servers. But there are differences in features and functionality:

Novell's NetWare client requester for Windows NT (Due in early June)	Microsoft's Client Services for NetWare (Available now)
▶ Support for NetWare Directory Services	▶ Support for NetWare 4.x only in bindery emulation mode
▶ No support for RISC workstations	▶ Support for RISC-based workstations
▶ Support for 32-bit NetWare administration	▶ Full auto reconnect
▶ Full auto reconnect	▶ Native TCP/IP support
▶ Native TCP/IP support	

Document management gets a new look

By Tim Ouellette

As the definition of "computer document" is changing to represent a container of text, images, graphics, audio and video, so too is the makeup of traditional document management firms.

Recent product releases from Xyvision, Inc., Saros Corp., Documentum, Inc. and Interleaf, Inc. have attempted to support the many kinds of information that exist in a company's computer system instead of acting as a powerful file manager for only some documents.

For example, Xyvision's Parlance Document Manager 2.2 software has evolved from what was primarily a publishing system into a platform that supports compound document management for all corporate information. A Portal feature lets users create background batch operations and develop tailored programs through an application programming interface, according to the Wakefield, Mass., company.

Parlance Document Manager lets users produce and store documents made up of text, images and graphics to paper, CD-ROM and networks. The information is stored in a relational database as binary large objects. And information about the objects themselves is stored in system-generated or user-defined relational tables.

"What was a document publishing company has been reconstructed" to look and smell like a database company, said Stephen Weissman, an analyst at Hurwitz Consulting Group, Inc. in Watertown, Mass. Users do not care about the underlying technology, he said, but rather just want to get at information through familiar desktop applications.

At Sikorsky Aircraft in Stamford, Conn., maintenance manuals can now be created on CD-ROM from the same information used for paper manuals at no additional cost.

"We are moving away from publishing to managing information and leveraging that information and legacy data to create new products and variations of products that we would never have been able to do before," said Rich Weich, director of technical support services at Sikorsky.

Spreading out

Sikorsky has about 750,000 pages of data in Parlance Document Manager right now, Weich said. The company has four core helicopter products, but numerous small variations and options create many different product lines, he said.

"In the old system we had to replicate and recopy all that information," he said. "We wanted to break things into modules, because we were selling more and more derivative [similar products], but it was costing more and more to publish this information."

Saros in Bellevue, Wash., has historically focused on general document management uses for the whole enterprise.

The company announced a new version of its Mezzanine document management software early last month and drew interested crowds at the Association for Information and Image Management show in San Francisco. Saros added features to attract enterprise users, including a bulk-add capability that lets users add an unlimited number of new documents to the system each day and dual-version connectivity that lets users phase in the upgrade by running older versions of Mezzanine in conjunction with the new one.

Weissman said these document management companies must focus on fulfilling specific business needs for customers. "It's a matter of how a document management company views [itself] that defines [it] in the market," he said

AIX

CONTINUED FROM PAGE 47

like to use the latest operating system." Having the same release on all systems will ease administration and user training, he added. Migration to AIX 4.1 has gone smoothly, he said, with data files and TCP/IP addresses preserved on each machine.

Hollebeek said the main advantages of AIX 4.1 are quicker installation, an easy-to-use icon-based graphical desktop based on the Common Desktop Environment and a smaller memory requirement.

"The overall size of the system dropped a lot," he said. "We were sneaking up on 600M to 700M bytes [with AIX 3.2.5], and now we're down in the 400M-byte range." Still missing, he said, is AIX 4.1 support for IBM's SP/2 parallel processors, which are based on RS/6000 CPUs. IBM confirmed last week that SP/2 support is still not in place.

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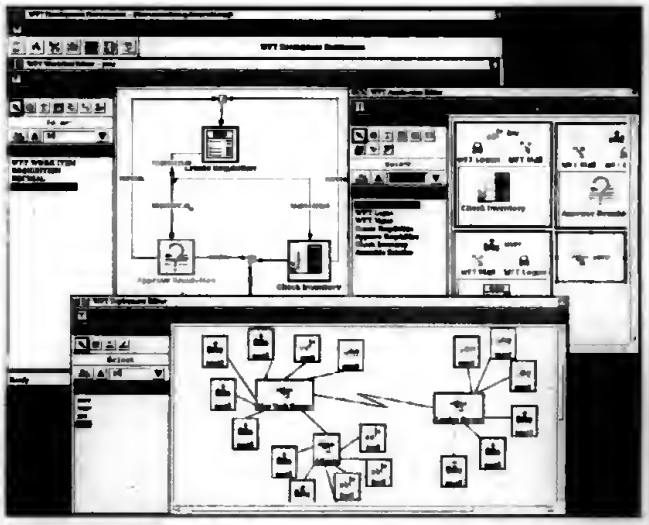

Workflow Template 3.0 *lets users develop production-level workflow systems for a company's diverse platforms*

Model system produces workflow applications

Template product enables diverse development

By Tim Ouellette

Building on top of its object-oriented development environment called Snap, Template Software, Inc. has announced Workflow Template 3.0, a package designed for constructing workflow-based applications.

Workflow Template lets users develop production-level workflow systems for diverse platforms across the enterprise.

The product includes a workflow object class library with objects that developers can reuse to route, queue, distribute and manage tasks in the work process.

The Snap environment can also integrate elements such as spreadsheets, or entire applications, into a task

Multiple deployment

But the ability to work at one desktop to create both client and server applications across various platforms is drawing user and analyst interest.

"Our needs are simple," said Paul Hill, president of Open Systems Associates, a network consultancy in Herndon, Va. "We want one set of tools on the same machine that can provide distributed applications. This is a great productivity tool."

"Its strength is that the application can be deployed on multiple client/server architectures" without the help of a system administrator, added analyst Tom Koulopoulos, president of Delphi Consulting Group, Inc. in Boston.

Seven different editors each provide a visual depiction of every step of development, from workflow design through deployment (see photo above).

And Workflow Template is based on a store-and-forward messaging model, so all relevant applications do not need to be on-line to support real-time object interaction. If a task includes an encapsulated application, such as a spreadsheet, it is not necessary to have that application on the desktop.

"It is clearly a developer's product," Koulopoulos said. "They have created an environment where the developer can work with the end user."

Under control

At Open Systems, Hill is testing Workflow Template while using Snap to create a real estate system

"We will almost assuredly use some of the workflow if not all of the workflow," he said

Important to any workflow system is the ability to manage and monitor the whole business process Workflow Template time-stamps events, lets managers run simulations of workflow for "what-if" analysis and reprioritizes work

"They have made it easy to incorporate process elements into applications. Other vendors are only aspiring to do this," said Natasha Krol, vice president of advanced information strategies at Meta Group, Inc. in Stamford, Conn. "They are not forcing you to translate your process to records that will be crammed into a database."

Other horizontal template offerings based on Snap include Systems Management and Interactive Support. Workflow Template 3.0 costs $5,000 per user, regardless of platform.

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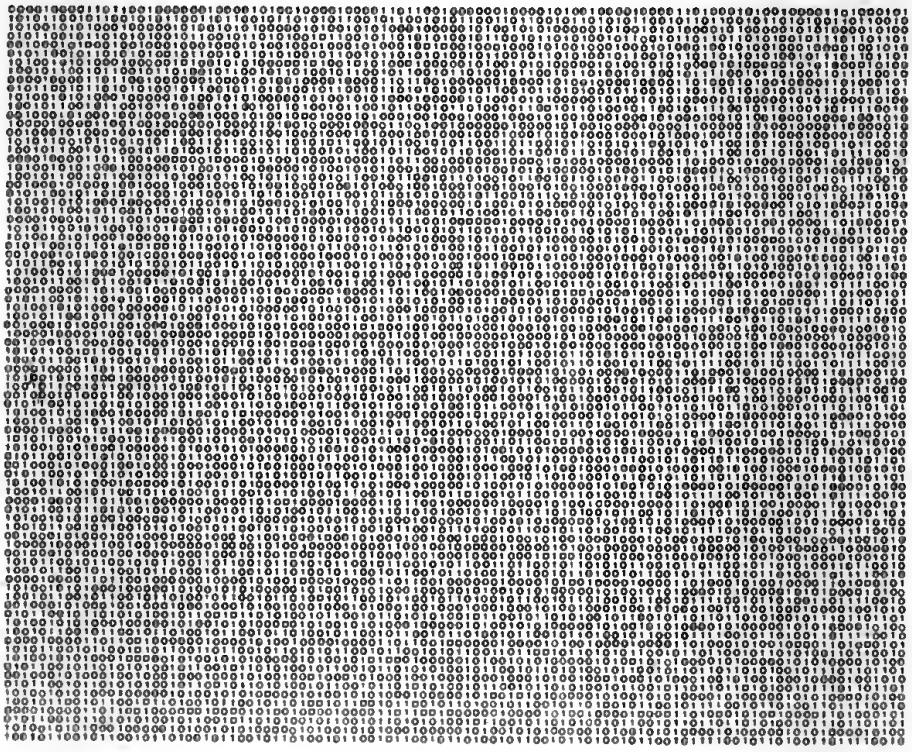

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Trinzic Corp. has introduced InfoPump 1.2 for Microsoft Corp.'s Windows NT, database replication and routing software.

According to the Palo Alto, Calif., company, InfoPump 1.2 for NT replicates host data on servers for end-user access. It facilitates the sharing of data between the source and transaction-oriented, relational database management systems.

InfoPump 1.2 for Windows NT is programmable to allow data to be delivered in the user's preferred format. It allows data movement to be scheduled so that needed information is automatically delivered to the target database.

InfoPump 1.2 for Windows NT costs $25,000.

▶ *Trinzic*
(415) 328-9595

D-Link Systems, Inc. has released Hubby, an Ethernet Micro hub designed to connect small workgroups to a network.

According to the Irvine, Calif., company, Hubby can connect to 10Base-T cabling. It offers several configurations, depending on users' requirements, and can be connected to a workstation, laptop or print server or cascade with other 10Base-T hubs.

Hubby has five unshielded twisted-pair ports and is powered through a PC keyboard power extractor or a separate power adapter.

Hubby costs $99.

▶ *D-Link Systems*
(714) 455-1688

Feith Systems and Software, Inc. has introduced Feith Document Database (FDD) 4.2, a document image storage, management and retrieval system.

According to the Fort Washington, Pa., company, the product features Generalized Object Storage (GOS) and Color and Grayscale Support. GOS provides document management of Windows application files and works with the FDD Easy Juke mass storage server to hold different Windows application objects in its optical disc. The Color and Grayscale Support feature lets users save, print and fax FDD documents in color.

FDD also includes features for network printing, text retrieval, multimedia annotations, optical character recognition, multiline bidirectional faxing and portable imaging.

Feith Document Database 4.2 operates under Windows with TCP/IP in a Unix client/server network environment.

Pricing for FDD 4.2 starts at $80,000 for a 10-user concurrent license.

▶ *Feith Systems and Software*
(215) 646-8000

NuParadigm Imaging, Inc. has announced NuParadigm Imaging Suite, a set of image-enabling software.

According to the Charlotte, N.C., company, NuParadigm adds imaging capabilities to applications and development environments without complex programming. It lets users develop applications in a database or on the host platform of their choice and directly adds the required imaging functions.

Users can also build imaging applications across heterogeneous networks and incompatible application environments. With the user workstation running Windows, users can build an imaging system with any database running on any platform.

The software supports a variety of scanners including Epson America, Inc., Hewlett-Packard Co., Fujitsu America, Inc. and Logitech, Inc.

NuParadigm Imaging Suite costs $249.

▶ *NuParadigm Imaging*
(704) 344-0505

Optical Technology Group, Inc. has announced ObjectUtilities for Windows, a programmable image processing system.

According to the Bethesda, Md., company, ObjectUtilities for Windows incorporates imaging functions into applications with full support for Microsoft Corp.'s OLE technology through a standard C application programming interface (API). It lets users scan, markup, format, annotate and enhance bitonal, color and grayscale images.

It is offered with OLE 2.0 interfaces and C API library options for developers.

ObjectUtilities for Windows costs $199 per desktop.

▶ *Optical Technology Group*
(301) 897-1400

Microport Systems has announced Conference Link, Software for collaborative workstation conferencing.

According to the North Logan, Utah, company, Conference Link lets users hold high-performance conference sessions over LAN, WAN, Internet and dial-up connections. It allows workstations to share multimedia information and graphically dense applications and coordinates the execution of applications on each system.

Conference Link has parallel information sharing and is not affected by bandwidth.

Conference Link starts at $895 per license.

▶ *Microport Systems*
(801) 750-7800

Polycom, Inc. has announced the ShowStation Document Conferencing Projector.

According to the San Jose, Calif., company, the product lets users interactively revise, annotate and print shared documents during a conference call. It works with Polycom's SoundStation and is linked by regular telephone lines to distant meeting rooms or desktop PCs.

ShowStation Document Conferencing Projector lets users review spreadsheets, diagrams, memos and slide presentations.

ShowStation Document Conferencing Projector costs $10,795.

▶ *Polycom*
(408) 526-9000

Product shorts

Operations Management Tools recently released Serman, a management system for recording and tracking service requests. Serman features programmed function keys and pop-up key field listings. Cost: Starts at $795. Operations Management Tools, New York (212) 677-9124. . . . **Omtool Ltd.** has announced Fax Sr. for Microsoft Corp.'s Windows NT, client/server software that provides fax server user access control. Fax Sr. lets systems managers set up a faxing priority structure and provides remote access to the fax server via the Internet or dial-up connections. Cost: Begins at $2,495. Omtool, Salem, N.H. (603) 898-8900 . . . **QMS, Inc.** has announced the QMS ImageServer Option Kit. According to the company, the kit extends image-enabled printing capabilities to the line of QMS Crown printers and decreases the need for a dedicated PC to rasterize images. Cost: Begins at $299. QMS, Mobile, Ala. (205) 633-4300.

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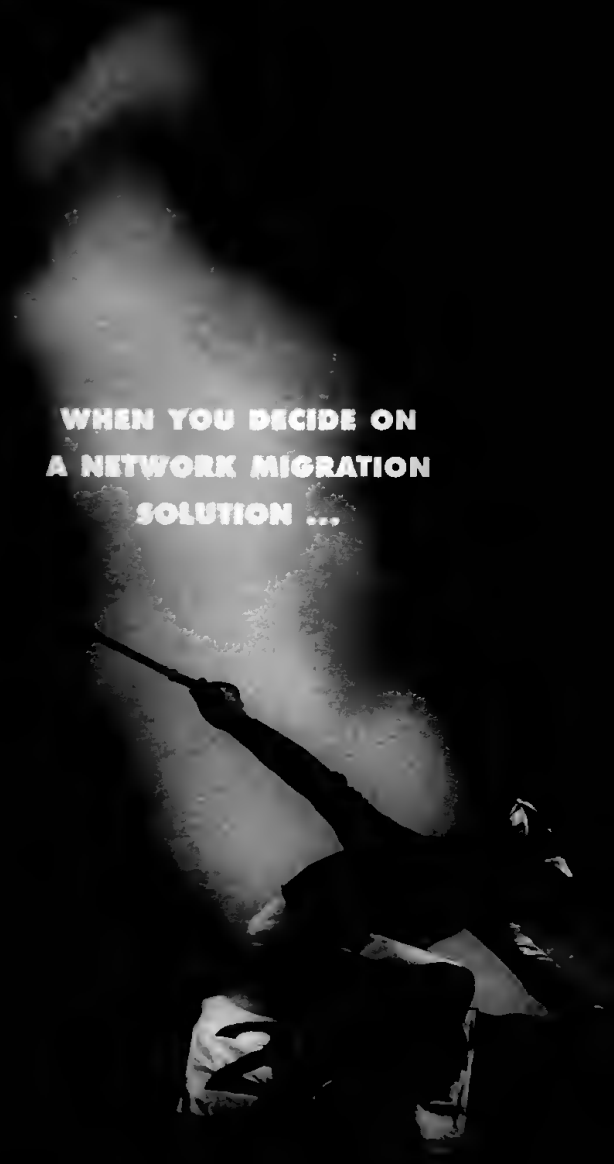

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IS staffs take the on-line plunge

From product upgrades and software patches to monitoring newsgroups, IS gets in line to go on-line

By Ellis Booker

If his department's access to the on-line services' technical and vendor forums were cut off tomorrow, it would "severely hamper our network upgrades across the board," said Fred Hegner, director of application development at Bergan Mercy Health System, Inc. in Dallas.

At Bergan, as at many other companies, information systems staffers are increasingly tapping into on-line networks and the Internet as a place to fetch software patches from vendors or to monitor discussion forums on the latest technical developments on myriad computing and networking subjects.

Closer Look
ON-LINE INFORMATION SERVICES

Mounting numbers

Although there are no figures that specifically track IS use of on-line services, anecdotal evidence suggests that the number is growing.

At Ore-Ida Foods, Inc. in Boise, Idaho, for example, about 13 of the IS department's 52 employees are up on the Internet. This number will grow, said Scott Robertson, an information technology strategist at Ore-Ida, who shares the increasingly widespread feeling that all IS staffers soon will have a reason to be connected to some kind of on-line service.

This is the scenario at Jacobs Engineering Group, Inc. in Pasadena, Calif. All 120 IS staffers have access to the 'net, but only 30 to 40 are using it regularly, said Jim LoSasso, vice president of IS.

"The Usenet newsgroups are helpful," said the director of systems administration at a $1.3 billion brokerage firm who asked not to be named. The company has a 400-person IS group. "If you've got a question, you post it to one of these groups and get some pretty good responses in a timely fashion."

This executive and others said vendors, especially those with networking software or hardware, seem to monitor the technical forums closely, both to answer questions quickly and stomp out misinformation and rumors.

For instance, the calculation error in Intel Corp.'s Pentium microprocessor was first discussed on an Internet Usenet newsgroup. Intel's experience served as a lesson for any company whose goods or services are talked about on the 'net: Don't dismiss complaints in these spaces; they are inhabited by some of your most technically sophisticated and vocal customers.

But there is a lot of bonehead information out there, too, according to Jay Batson, a senior analyst at Forrester Research, Inc. in Cambridge, Mass.

One of the biggest issues with using these discussion groups effectively is that good information may be far down in a discussion tree and therefore may be missed by the casual reader. It is best to treat these bulletin boards as a continuing education class or a place to bash out common problems with peers rather than a recipe book for resolving technical problems.

Next to exchanging electronic mail and monitoring technical chats, by far the most popular application of on-line networks in IS groups involves downloading software patches from vendors.

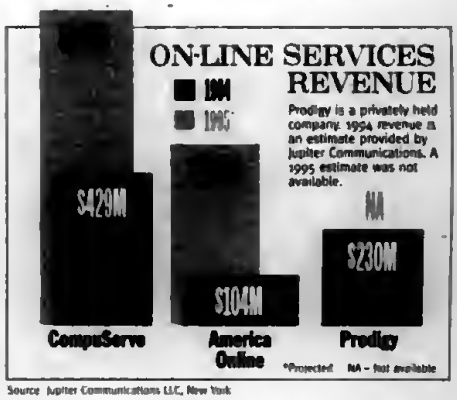
"All our upgrades for Apple products come via Internet file transfer protocol," Robertson said.

One of the key uses of E-mail at Jacobs Engineering, LoSasso said, is contact with suppliers and potential customers. "We request pricing information and get back replies very quickly," he said. The company also collects weekly work bids from the government, "which we pass along to the salespeople."

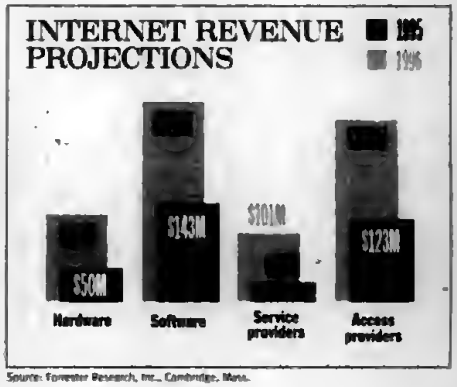
Elsewhere, IS managers are bidding on people, not contracts, on the 'net. Using the 'net to search for employees is a growing trend, employment specialists said.

One IS manager hit on a way to resolve some of his technical issues and scout new talent at the same time. He posts especially thorny technical problems in the relevant discussion groups and watches for the best replies. But as they expand staffs and technical know-how, IS executives are being asked to monitor the commercial prospects of on-line ventures.

Take Ore-Ida Foods, which like a legion of other organizations is considering putting up a corporate Web site. At the moment, the company has a small pilot page up and running with 10 or 12 products listed.



Source: Jupiter Communications LLC, New York



Source: Forrester Research, Inc., Cambridge, Mass.

Working the @vantage

IS-related newsgroups on the Internet or commercial on-line services can be a worthwhile source of information. The problem is that the information is often scattered and unfiltered.

In an effort to create a better electronic stomping ground for IS staffs, Gartner Group, Inc. in Stamford, Conn., last week launched @vantage, an on-line service specifically tuned to the needs of information technology staffs.

The service, available via AT&T Corp.'s Interchange Online Network, will provide analysis and advisory reports from Gartner Group, Esther Dyson's "Release 1.0" newsletter, customized industry news from Individual, Inc., information technology reports from Dataquest, Inc., semiconductor analysis from Pathfinder Research, Inc. in San Jose, Calif., and new product information from vendors. The new service will also feature a plethora of interactive forums for IS professionals.

Top uses of on-line services by IS staffs

1. Electronic mail
2. File transfers, primarily for software patches from vendors
3. Active participation or lurking in technical forums
4. Recruitment
5. Competitive analysis, news
6. The first glimpse of intercompany communications beyond E-mail, including electronic data interchange

Source: Industry analysts

"IT professionals are in information overload, and the rate of technological change is so overwhelming that clients have asked us to provide interactive technologies that enable them to cut through the clutter," said Manny Fernandez, chairman, president and chief executive officer of Gartner Group, in a prepared statement. Gartner Group expects to announce partnerships with additional information providers throughout 1995.

@vantage will have a dedicated editorial and analytical staff to moderate the forums and integrate incoming information as well as to make sure the service remains free of "commercialism."

The cost for @vantage, which will go live when AT&T's Interchange comes on-line in the next few months, will be $40 per month for basic research and alerts. Premium services will cost $2,000 for Gartner clients and $4,800 for non-clients. —*Ellis Booker*

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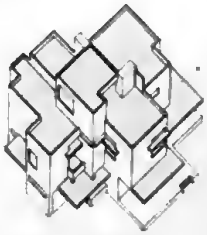

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Serving up the Web

Financial, technical and security barriers limit in-house management

By Michael L. Sullivan-Trainor

You can't tell Robert S. Cauthorn that the Internet has insurmountable security, technical and cost issues that prevent it from being a serious medium for commercial ventures.

"A lot of this jazz is overblown," says Cauthorn, director of new technology at the *Arizona Daily Star* in Tucson. "There's a mystique surrounding the complexity and security. There isn't that much to it."

To prove his point, Cauthorn is leading a project to establish the *Arizona Daily Star* as both a subscription-based World-Wide Web site and an Internet connection service provider. The newspaper's venture, called StarNet, became available May 5 to residents and businesses within the *Star*'s circulation area.

Despite the optimism of Internet pioneers such as Cauthorn, about half of the 5,000 companies that have established a commercial site on the Web use outsourcers — either Internet service providers or systems integrators — to manage the server and maintain the connection.

"We're in the service bureau phase of the Internet," says Peter Raulerson, principal at ParaTechnology, Inc., a consultancy in Bellevue, Wash. "In many companies, the marketing group wants to begin a pilot project on the Internet, and the CIO doesn't have the expertise so they decide to outsource."

Growing market

In a recent survey of 500 Internet providers and systems integrators, ParaTechnology found that the market for outsourced Internet services will grow from $5 billion to $45 billion in the next 10 years.

Will financial, technical and security barriers prevent widespread internal hosting of Internet servers? It depends greatly on whom you ask. But eventually, the reasons for in-house control will outweigh the negatives, pioneers and analysts said.

"In the near term, there is a large surge to hosting the server off-site. But turnkey solutions are starting to evolve. Eventually people will do it themselves because the Internet will allow companies to streamline business processes, and internal connections will be necessary to do that," says Tom Missato, project leader at CommerceNet, an Internet consortium of users and vendors in California's Silicon Valley.

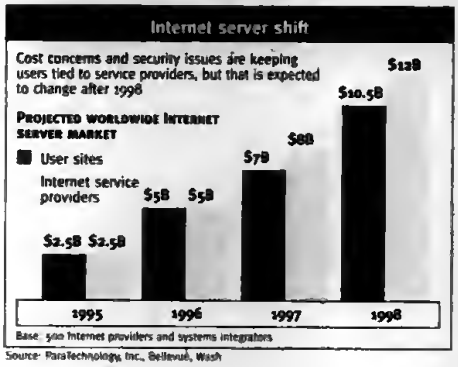
CommerceNet members, 90% of whom have internal Web servers, are already working on these types of applications. In one pilot project, a PC manufacturer is using its Internet connection to manage its parts supply line. The manufacturer transmits requests for circuit boards across the Internet to a subcontractor.

In turn, the subcontractor circulates the request to component distributors. Working from the same request, multiple firms are able to provide quotes and come to agreements to fill the order.

Another pioneer, Robert Womack, director of computer services at Hale and Dorr, a large Boston law firm, uses BBN Planet Corp.'s 56K-bit connection to the Web but runs the company's server on the premises.

The server provides clients access to a home page about the firm's partners and areas of expertise. The partners use the connection for Wide Area Information System-based searches to assist with their cases.

"We didn't have that much added cost to our existing Internet connection, and there were clear benefits. We were able to bring in a summer intern to develop the [HyperText Markup Language] code we needed. Overall, it just wasn't as bad as I thought," Womack said.



At the *Arizona Daily Star*, Cauthorn found implementation a lot easier than the hype suggests. "I'm a journalist and a computer person, so the combination of content and technology came easy to me," he said.

On the other hand, "it was hard to find a systems administrator to help me out. There weren't that many knowledgeable applicants," Cauthorn said.

Blocking the way

There are some key barriers to hosting an Internet server, according to Tom Missato, project leader for CommerceNet, a Silicon Valley consortium of computer vendors, parts suppliers, major banks and retailers that is trying to push business use of the Internet. Roughly 90% of CommerceNet members host their own servers.

Following are among the issues:

- **Technical capability.** Basic requirements include an Integrated Services Digital Network line; software to generate Hypertext Markup Language, which is the graphical interface to the Internet; and a PC or Unix server that has between 16M bytes and 32M bytes of RAM and runs at 100 MHz. Finding personnel to implement the connection may be even more daunting if you need specialized, on-line business forms designed and a firewall established.
- **Financial.** While users can pay anywhere from $600 to thousands for outsourcing, the larger issue is cost-justifying the investment in an internal server, which involves dedicating a technician to manage the server as well as purchasing the gear required. It is generally more expensive to run the Internet server internally, Missato and other experts agreed.
- **Security.** Most companies deal with the Internet's vulnerability to hackers by maintaining separate servers and connections from their primary internal systems. The added expense of this approach also argues for outsourcing, which automatically keeps the Web site separate.

Hypertext Markup Language (HTML)

HTML is a derivative of the Standard Generalized Markup Language. HTML "tags" in a document dictate styles for titles and lists as well as pointers to on-line graphics. HTML pages are hyperlinked together by referencing their Uniform Resource Locators (URL). URLs are packaged inside one set of HTML tags. When viewed with a graphical browser such as Mosaic, tags are not shown and the hyperlinks to other pages appear as colored, underlined text.

- **A Beginner's Guide to HTML** (http://www.ncsa.uiuc.edu/general/-internet/www/htmlprimer.html)
- **Introduction to HTML** (http://www.vuw.ac.nz/nonlocal/gnat/-www/html.html)
- **HTML Quick Reference** (http://www.ncsa.uiuc.edu/general/internet/www/htmlquickref.html)

Hypertext Transfer Protocol (HTTP)

HTTP is a generic, stateless object-oriented network protocol. HTTP allows the data representation to be negotiated between systems, meaning systems can be built independently of the new ways to represent data.

- **The Internet Engineering Task Force's (IETF) Basic HTTP Internet Draft** (http://www.w3.org/hypertext/WWW/Protocols/HTTP/HTTP2.html)
- **IETF's HTTP Working Group** (http://www.w3.org/hypertext/www/protocols/http/http2.html)

Weird Web

Web Autopilot from net.Genesis Corp. lets you kick back and watch several thousand Web pages randomly scroll by. Requires Netscape's 1.1 browser (http://www.netgen.com/~mkgray/autopilot.html)

- **The Guide to Film and Video Resources on the Internet**, maintained at the School of Information and Library Studies at the University of Michigan (http://http2.sils.umich.-edu/Public/fvl/film.html)
- **Mirsky's Worst of the Web**, affectionately compiled by Mirsky-Style Productions (http://turnpike.net/-metro/mirsky/Worst.html)
- **Sexual Time Travel**, a historical look at this popular 'net topic (http://mosaic.echonyc.com/~rzacks)
- **The Franklin Institute Science Museum**, a virtual version of the museum I loved as a kid growing up in Philadelphia (http://sln.fi.edu/)

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Objects vital to IBM's success

SystemView advantage lies in object support

By Steve Moore and Patrick Dryden

MANAGEMENT NETWORK

Although early users are pleased with the slick user interface and convenient CD-ROM packaging of IBM's newest set of network and systems management software, some analysts said last week that SystemView for AIX is still too IBM-centric.

SystemView for AIX, previously code-named Karat, debuted formally earlier this month [CW, May 8]. It consists of 25 existing products and two new ones, packaged on CD-ROM with a single interface. IBM will not support all its own platforms until next year.

To remain competitive, analysts said, IBM must stay no schedule with plans to make SystemView products object-oriented and port them to the SunSoft, Inc. Solaris and Hewlett-Packard Co HP-UX platforms by early next year.

"When SystemView for AIX comes with an object interface, IBM will be able to port it easily to a bunch of platforms," said Frank Dzubeck, president of Communications Network Architects, Inc. in Washington. Once that happens, SystemView will become more of a threat to competing network and system management products, he said, noting, for example, that SystemView for AIX "will give SunNet Manager a run for its money on Sun platforms."

But while SystemView's real advantages will be evident when the software becomes object-based, "it will take two years for IBM to either write new object-oriented applications or put wrappers around existing procedural applications so they can act like objects and gain access to each other's data," said Dave Passmore, a principal consultant at Decisis, Inc. in Herndon, Va.

At the same time, IBM must attract third-party developers that are still learning how to write object-oriented applications, he added.

Still, some users appear content with better packaging and a consistent user interface — and lower prices (see chart).

"Object support is not important to us right now, and IBM is still struggling with how to make objects consistent," said Jerry Wetherington, systems coordinator at the University of Florida in Gainesville.

IBM's CD-ROM packaging "streamlines dealing with IBM and with our own bureaucracy," he added.

Analysts noted that IBM has learned from its past mistakes with SystemView. This announcement "is an order of magnitude more coherent than anything since their original SystemView announcement" in 1990, said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Agent: A piece of software that sits in a desktop application. It is queried by a network management application to help it complete certain tasks. For example, the agent supplies the network manager with information about a particular user's desktop configuration, among other things. IBM this summer will introduce agent technology — in NetView for AIX and in a developer tool kit — to allow disparate desktop and server platforms to feed consistent information to systems and network management applications.

Unification cuts cost

Combining diverse products in one CD-ROM package lets IBM simplify the setup and operation of whichever SystemView for AIX management option users choose. The cost of a sample configuration is as follows:

Product	Old (Diskette and manual)	New (CD-ROM with on-line help)
NetView network manager	$16,500	$15,000
System monitor agents for HP server	$2,495	$2,200
Trouble-ticketing	$12,000	$10,500
LAN management utilities	$6,950	$6,000
Job scheduler for 10 nodes	$13,850	$12,000
Total	$51,795	$45,700

SystemView strides

SystemView's new distribution scheme makes installation easier, and help is now readily available on-line. The CD-ROM packaging also lowers prices. Selecting a sample configuration from the CD-ROM set costs $6,000 less than purchasing the same packages separately.

SystemView unifies products — from IBM, vendor partners and anyone adhering to Simple Network Management Protocol standards — behind a drag-and-drop interface. Those management programs launched from the SystemView console work the same, and two new tools help link some procedures.

Similar consoles will arrive for the following IBM platforms: for OS/2 in the third quarter, MVS by year's end and OS/400 early next year.

But SystemView will not integrate all management functions through object-oriented technology until next year. Administrators seeking such capability can get it from Computer Associates International, Inc., Groupe Bull and other competitors. — *Patrick Dryden*

Remote access market readies for Windows 95

By Michael Fitzgerald

ATLANTA

■ The coming of Windows 95 with its built-in remote access software might bring even more turmoil to this crowded, brawling market, but established players should survive the arrival of the Microsoft Corp. monolith, most observers agreed.

The recent Comdex/Spring '95/Windows World show here saw two players — Bothell, Wash.-based Traveling Software, Inc. and Iselin, N.J.-based Triton Technologies, Inc. — roll out their remote access strategies for Windows 95. Next week, Farallon Computing, Inc., the longtime Macintosh software maker in Alameda, Calif., will bring out Timbuktu Pro for Windows, a network remote access product aimed at Windows 95. And Microcom, Inc. in Norwood, Mass., will come out with a long-overdue update to CarbonCopy. Meanwhile, Santa Barbara, Calif.-based Norton-Lambert Corp. will release Close-Up/LAN Pro Version 6.1.

Symantec Corp.'s market-leading PCAnywhere product was the first to ship with Windows 95 support, and the Cupertino, Calif., company continues to support more of Windows 95's features than its competitors.

Of course the question is, will the utility makers please corporate users, or will they suffer a Darwinian death thanks to Microsoft's decision to build remote access capability into this next version of its operating system?

Lack of Windows 95 support "would not have stopped us from buying the product," said John Downey, deputy director of management systems at the office of the undersecretary of defense at the Pentagon in Arlington, Va. Downey's office recently ordered a 1,000-user license of Farallon's Timbuktu because "our users need help now."

Survival is possible

Analysts agreed that the remote access vendors can survive Microsoft's remote access efforts.

"Look at what happened with [Symantec's] Peter Norton — Microsoft built in utilities, and Norton's thriving," said Tim Schmidt, a principal at Intelligent Technologies, Inc., an industry consulting firm in Orlando, Fla. Schmidt said he expects that as long as these companies "don't get lazy," they should be able to maintain their edge over Microsoft.

Mobile briefs

■ CompuServe, Inc. in Columbus, Ohio, has joined forces with wireless companies MobileComm, PageMart, PageNet and SkyTel to provide enhanced mobile services such as electronic-mail notification, which will allow users to forward E-mail to a pager. The pager then notifies a person when a message arrives, eliminating the need to connect frequently to search for messages. CompuServe's new Stay in Charge service also lets subscribers use the same pager whether they want local, regional, nationwide or custom coverage.

■ Communication Intelligence Corp. in Redwood Shores, Calif., is shipping a new version of its desktop pen computing product, Handwriter for Windows. Handwriter 1.7 has been improved with electronic markup and signature capture capabilities for mainstream applications. With this version, users will be able to send personalized documents to the LAN.

■ Due to reduced operating costs, Cellular One is offering unlimited calls to its digital cellular customers during nights, weekends and holidays for a $15 flat rate. The "Unlimited Night and Weekend Calling" option covers all calls within the local calling area made during the "off-peak" hours of 7 p.m. to 7 a.m. Monday through Friday, weekends and most holidays. South San Francisco-based Cellular One said it is offering the rates because of the dropping costs of operating a digital network.

■ An "attachable" long runtime rechargeable zinc air battery is now available for Toshiba America Information Systems, Inc. portable computers, thanks to a deal between Toshiba in Irvine, Calif., and AER Energy Resources, Inc. The AER Energy PowerPro with 150 watt hours of energy will power several Toshiba models for up to 15 hours between charges. Toshiba and AER have been working on the new battery since last August. The list price for the PowerPro is $399. — *Mindy Blodgett*

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Applied Concepts, Inc. has announced PowerSwitch, a dual-server, fault-tolerant product for networks.

According to the Wilsonville, Ore., company, PowerSwitch prevents data access loss due to server failure by letting network administrators switch to a backup server, preventing any downtime. It can be used with IBM's NetFinity network manager to automatically switch to a backup server and notify administrators of a main server failure.

PowerSwitch supports platforms such as Hewlett-Packard Co., IBM, Sun Microsystems, Inc. and Compaq Computer Corp.

PowerSwitch costs $1,995.

▶ *Applied Concepts*
(503) 685-9300

Pericom, Inc. has introduced Teemtalk-TCP/IP for Windows.

According to the Lawrenceville, N.J., company, Teemtalk-TCP/IP for Windows uses the Windows Sockets application programming interface standard to provide access to many hosts across a range of networks that support the TCP/IP protocol. It is Ethernet-II frame-compatible, features Windows Dynamic Link Libraries and requires less than 6K bytes of DOS memory. It features a Windows configuration tool for changing networks during and after initial installation.

A single version of Teemtalk-TCP/IP for Windows provides multiple terminal emulation. It supports Digital Equipment Corp., Hewlett-Packard Co., Data General Corp., Prime Computer, Inc., Tandem Computers, Inc., IBM and Tektronix, Inc. platforms.

Teemtalk-TCP/IP for Windows costs $99.

▶ *Pericom*
(609) 895-0408

Clark Development Co. has announced PCBoard 15.21, bulletin board service (BBS) software.

According to the Murray, Utah, company, PCBoard 15.21 features Shared Secret Logons, password protection that ensures log-in security. It includes Automatic Installation, predefined BBS configuration options that users can select. Other features include PCBMail, Windows electronic-mail software and an updated Internet/Unix to Unix Copy Program gateway.

PCBoard requires at least 450K bytes of RAM, a hard disk, DOS 3.1 or later and a modem for remote dial-in operation.

Pricing for PCBoard 15.21 starts at $150 for a two-node system.

▶ *Clark Development*
(801) 261-1686

Digital Products, Inc. has announced NetPrint 10 and NetPrint 11, low-cost print servers for Novell, Inc. Ethernet networks.

According to the Waltham, Mass., company, NetPrint 10 connects a single parallel printer directly to a Novell 10Base-T network. NetPrint 11 connects a parallel printer to a Thinnet network. Each has a three-step installation.

Both products support Novell NetWare 2.15+, 3.11 and 4.0 and Novell's IPX and SPX protocols.

NetPrint 10 and NetPrint 11 cost $245 each.

▶ *Digital Products*
(617) 647-1234

Product short

Locus Computing Corp. has introduced PC-interface, server software with support for MIPS Application Binary Interface (ABI)-compliant Unix systems. The product lets the MIPS ABI server act as a gateway to enterprisewide file and print services. It includes TCP/IP and database management system support. Cost, $255. Locus Computing Corp., Inglewood, Calif. (310) 670-6500.

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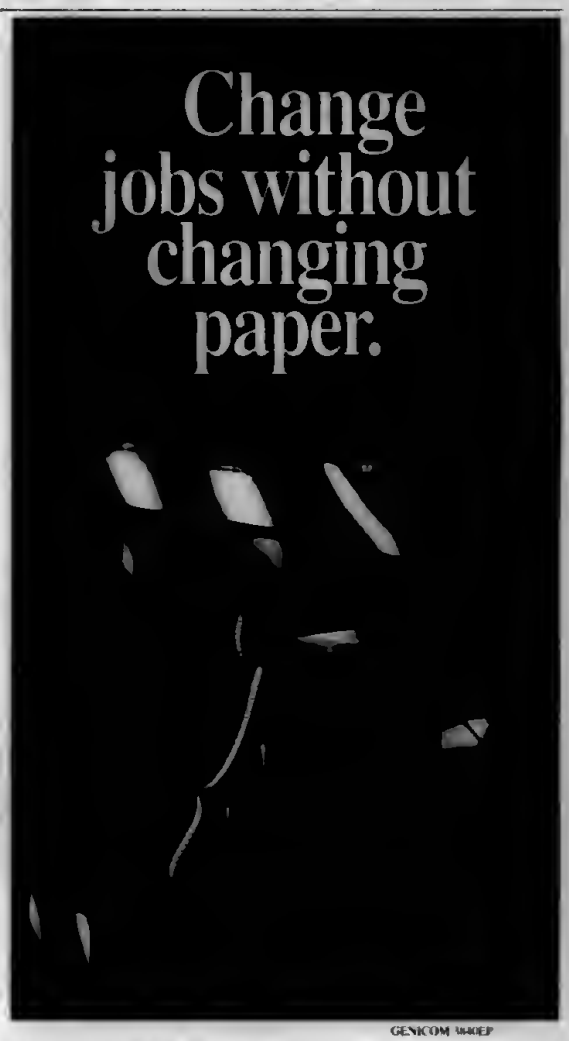

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VMS bridging to NT

Digital will continue to enhance VMS for now, but eventually the operating system will go away

By Neal Weinberg

Digital Equipment Corp.'s VMS operating system was facing a slow, lonely demise. But the company's recent decision to build a bridge to Microsoft Corp.'s Windows NT at least offers VMS death with dignity.

Digital is now telling OpenVMS users to adopt a tiered client/server setup, with Windows NT handling business applications and OpenVMS running mission-critical applications. Digital will ensure that new applications can run on both operating systems. This setup will position users to eventually migrate entirely to NT [CW, May 8].

"It was intuitively obvious that VMS was on the way out," said Terry Shannon, an analyst at Illuminata in Hollis, N.H. He said Digital is "making the best of an untenable situation."

Digital and Microsoft both could benefit from their collaboration, he said. "VMS gets a life-extension wonder drug, and NT gets its presence on the desktop."

Wesley P. Melling, vice president of Digital's OpenVMS Systems Business Group, said Digital will provide several key enhancements to OpenVMS in the next three years and will continue to upgrade the VAX hardware line.

Melling said that because users can now ride off into the sunset with OpenVMS/NT, they will not be as likely to stampede to another operating system, such as Unix. He said he would be surprised if OpenVMS revenue did not reverse its downward spiral, at least for this interim period.

Open VMS

VMS, first released in 1978, stands for Virtual Memory System. Digital estimates there are 10 million VMS users worldwide.

But as more and more applications are written for Windows NT, it will catch up to OpenVMS in enterprisewide robustness by around 1998, Melling predicted.

When that happens, users who have been running Windows NT for nonmission-critical applications could drop OpenVMS completely and put their entire operation on NT, Melling said.

Of course, not all OpenVMS users will flock to NT.

Joe Archer, assistant vice president for application development at the Colonial Group in Boston, said he has a bunch of operating systems, each of which came with a different business application. But he does not have NT, and he is not particularly looking forward to adding it.

Like many OpenVMS users, he is comfortable with what he has, and he is not looking forward to a major change. "NT is something I know is going to take some ramp-up on our part. It's yet another operating system we have to become familiar with and be able to support."

Looks familiar

To some users, this is déjà vu. Three years ago, the 32-bit VMS landed on the endangered system list when Digital announced it was vaulting into 64-bit territory with Alpha technology.

Digital renamed the operating system OpenVMS to counter the perception that it was a proprietary relic in an open systems age, but not many people were buying it. The company's muddled software strategy left users uncertain about future versions of their applications as independent software vendors turned their attention from OpenVMS to Windows NT.

Users like Dan Della Rossa, manager of computer resources at the Ontario Lottery Corp. in Toronto, worried that as new applications dwindled they would be forced to move to another operating system. "Everybody has concerns with regard to the fact that Digital is moving ahead and putting most of its effort into Alpha," he said.

AS DIGITAL MERGES ITS OPENVMS OPERATING SYSTEM WITH MICROSOFT'S NT ...

... SOME LONGTIME DIGITAL USERS ARE WORRIED ...

"NT is something I know is going to take some ramp-up on our part. It's yet another operating system we have to become familiar with and be able to support."

Joe Archer, assistant vice president for application development, Colonial Group, Boston

"Everybody has concerns with regard to the fact that Digital is moving ahead and putting most of its effort into Alpha."

Dan Della Rossa, manager of computer services, Ontario Lottery Corp., Toronto. He wants the timely availability of NT/OpenVMS applications so he isn't forced to move to another operating system.

... BUT DIGITAL REMAINS COMMITTED TO ENHANCING OPENVMS.

Among the planned new features:

- Windows application programming interface (API)
- 64-bit capability
- Log-structured file system

Data warehouses mature with help

By Kim S. Nash

Like a good marriage, a data warehouse is not created instantly; it develops only over time, with thoughtful goal-setting to build a strong foundation.

And like a nasty divorce, a bad warehouse can extract a lot of money, time and energy from the parties involved.

To avoid such ugliness, users and analysts at two recent conferences — DB/Expo in San Francisco and The VLDB Summit on very large databases in New Orleans — offered advice to starry-eyed information systems managers intent on creating warehouses.

First, managers must understand what a warehouse is, advised Claudia Imhoff, a consultant at Intelligent Solutions, Inc., a Boulder, Colo., firm specializing in warehouse issues.

A data warehouse is a massive collection of information related to a user's business. Marketing, sales and other decision-making staff can query the warehouse to answer various business questions such as, "How are argyle socks selling in Las Vegas?" or "How soon after bank customers open joint checking accounts do they inquire about home mortgages?"

Answers to questions such as these may help a company better target sales promotions or marketing campaigns, Imhoff explained. "This is fundamentally different from the heads-down order processing you do against a transaction-oriented database."

That said, users should next gather the appropriate IS and end-user workers to form a data warehouse design team. The team should consist of five specific roles, with the equivalent of a full-time worker assigned to each part, Imhoff said (see chart).

Hello, my name is:

Who you want on your data warehouse team:

Project leader	Obtains money, recruits workers, participates in design sessions
Data analyst	Creates entity-relationship diagrams and logical data model
Business analyst	Gathers user needs, writes plain English documentation
Database administrator	Designs physical database schema
Programmer/Analyst	Creates end-user access tools

Source: Intelligent Solutions, Inc., Boulder, Colo.

Foremost, include end-user marketers or senior executives on the design team, she urged. "Most warehouse projects are started in the IS department and seen as peddling a technology in search of a problem," she added.

Indeed, without the right people and tools, "data itself is a pile of nothing," said Tim O'Leary, a consultant at Epsilon, Inc. in Cambridge, Mass.

Aid for Amex

Epsilon offers help to large user companies implementing data warehouses. However, the company is probably best known for helping build American Express Co.'s massive warehouse, in which more than 1T byte of data is shredded by Amex marketing analysts.

A typical — and hugely complex — query involves figuring out who the company's most loyal customers are and how they can be induced to spend more with American Express, O'Leary said.

"I haven't run into a marketing person yet who understands the concept of a query from hell, but we [database administrators] sure know," he quipped.

Product delays

Unicenter for NetWare takes until August

By Thomas Hoffman

System management

Nick Lovelace was pleased when he first heard that Computer Associates International, Inc. planned to deliver a port of its CA-Unicenter distributed systems management package to Novell, Inc.'s NetWare environment. But now, nearly three years have passed and Lovelace's enthusiasm has waned.

As the information systems officer at Connecticut Mutual Insurance Co. in Hartford, Conn., Lovelace hoped to use the CA product to administer the company's then-dozen NetWare LANs from a single networked location.

But CA-Unicenter for NetWare, which was originally scheduled to enter beta testing in the third quarter of 1993, has been stalled by marketing and technical delays. Beta testing did not begin until last month. General availability is now set for August.

That being the case, Connecticut Mutual's thirst for automated network management capabilities has forced it to sample alternative oases such as Legent Corp.'s Paradigm and IBM's SystemView. "We would have liked to have seen [CA-Unicenter for NetWare] sooner," a disconsolate Lovelace said.

CA-Unicenter for NetWare has been derailed by a combination of technical snafus and marketing difficulties. When CA first began discussing the port with Novell in 1992, the Provo, Utah, networking giant was still emphasizing its NetWare 3.x environment. But Novell's upgrades to NetWare 4.x have made it difficult for CA to keep in step with its dance partner, said Sanjay Kumar, CA's president and chief operating officer.

To further complicate matters, NetWare is a different and more challenging operating environment to write to than the Unix, IBM OS/2 and Microsoft Corp. Windows NT ports that CA has written for Unicenter, said Yogesh Gupta, CA's senior vice president of open systems.

"NetWare doesn't have a virtual memory model like OS/2 or Unix," Gupta noted. "If one of the NetWare Loadable Modules that our programmers write to has a problem, five corresponding NLMs can shut down at once."

Those factors have led to user concern about how stable CA-Unicenter for NetWare will be when it ships.

"I have some doubts that [CA] will be able to make Unicenter [for NetWare] stable because of the NLM infrastructure. Look how long it took Novell to stabilize [NetWare] 4.11," said William E. Stanton, a senior systems engineer at Libbey-Owens-Ford Co., a Toledo, Ohio, maker of automotive glass.

Results count

Analysts have placed Computer Associates' fiscal 1995 CA-Unicenter revenue at $290 million, a figure CA is expected to confirm when it releases its year-end earnings report this week.

CA-Unicenter for NetWare has also been sidetracked by stronger customer demand for Unix and Windows NT versions of Unicenter, CA executives said.

"Windows NT is more strategic for us" than NetWare, said Tony Navarro, an information technology strategist at Baxter Healthcare Corp., a McGaw Park, Ill., division of Baxter International, Inc. that uses CA-Unicenter to manage enterprisewide, mission-critical applications such as its just-in-time order-entry processing application. Baxter's NetWare environment, in contrast, is used to run the company's departmental applications.

"Right now, Unicenter for NetWare is not a push-point for me," said Dave Dubnick, manager of technology operations at Commerce Clearing House, Inc., a Riverwoods, Ill., provider of tax and business law information and services.

"There are already a lot of [third-party] backup and recovery packages available in this space. Besides, Novell provides a fair amount of security software itself," Dubnick said.

Payroll provider adds client/server outsourcing

By Rosemary Cafasso

When BASF Corp. went shopping for client/server human resources software last year to replace its outdated mainframe applications, it turned to an unlikely source: its payroll processor, Automatic Data Processing, Inc. in Roseland, N.J.

The Mount Olive, N.J., chemicals manufacturer bought into a concept that ADP hopes will win over other customers as well — a human resources package that makes the migration to client/server somewhat tolerable.

The approach: ADP resells PeopleSoft Corp. human resources applications bundled with an outsourcing deal for its traditional payroll services.

The proposed payoff: Customers get to internally manage the human resources data while ADP handles the grunt work of payroll processing.

ADP "provides the whole thing," said Chuck Walker, a project manager at BASF. "You want a vendor to take responsibility for this."

Recently, ADP began shipping Release 6.0 of its Client Server Series (CSS), which includes a direct link between the customer applications and the ADP payroll system. The company plans volume shipments for September.

The link will enable customers to automatically update internal applications with payroll data as well as move payroll changes to ADP to conduct a payroll run.

Hefty payroll

ADP, founded in 1949, handles payroll for about 250,000 clients worldwide. It made $2.4 billion in 1994.

Up and running

CSS, which ADP started shipping in early 1994, now has 75 customers, 30 of which are in production, according to the company. CSS also ships with a payroll module for customers who want to handle that job in-house. But a company official said 90% of CSS customers are using the ADP payroll service.

Ed Black, an analyst at Aberdeen Group in Boston, said that while ADP's strategy is interesting, it could be limited to companies that do not want to step too deeply into client/server computing or "worry about LANs and GUIs and general protection faults."

"Does [ADP's approach] have broad applicability?" Black asked. "I am not sure of that."

But some users said ADP's licensing approach was a big selling point. The company provides software and outsourcing services on a monthly fee basis. For example, a company that licenses the management and benefit applications along with payroll processing for 2,000 employees is charged about $10,000 per month for a basic ADP package. That fee includes annual maintenance.

Other software companies typically sell client/server software with an upfront per-module license fee. Depending on the configuration, a module can cost $50,000 or more.

Rick Nelson, manager of systems programming at Sheldahl, Inc., a Northfield, Minn., manufacturer of electronic equipment for the automobile industry, said that by selecting ADP, his company avoided a "huge up-front investment."

Nelson said his staff looked at other human resources software, including a package from PeopleSoft. It would have cost about $250,000 to get the full set of functions needed, the staff estimated.

Nelson would not reveal his exact ADP costs but said the company is paying roughly the same in monthly license fees for ADP's package as it would have paid for other vendors' annual maintenance fees alone.

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Loan firm gives Digital swift approval

By Julia King

This is a Cinderella story about a student loan processing company whose information systems managers still look back in amazement at a nearly flawless implementation of Digital Equipment Corp.'s multiprocessor Alpha technology.

Their amazement stems from the stark contrast between this latest implementation and a computing catastrophe with another Digital machine last summer.

"In all of my experience with systems, this is really one that came out almost unbelievably well," said Doug Dolton, chief information officer at Servus Financial Corp. in Herndon, Va. The firm advertises that it can finance a college education in less than 15 minutes. (See box, this page.)

Just a second — not quite

Servus spent about $500,000 to upgrade to Alpha, which helped reduce system response time from 27 seconds to less than one second.

Hurry up and wait

But last July, at the peak of college loan season, callers in need of funds were waiting three to four hours to place their applications. The delays were caused by Servus' main processor — then a DEC 5900 machine running Digital's Ultrix operating system — which just could not process all the transactions associated with the 70-plus simultaneous calls Servus was receiving.

When the DEC 5900 was installed 14 months earlier, Servus figured on receiving between 32 and 40 calls simultaneously. The higher number threatened to drown the system

"The reason the box got so overloaded so quickly is because [University Support Services'] business grew so rapidly," said IS manager Michael Rusk. "We went beyond our load factor, and response times were horrible. We had callers on hold for two to three hours, and people taking the calls were writing information down on paper. Apple was also screaming at us." The company has an arrangement with Apple Computer, Inc., among other PC vendors, to finance computers for students.

But top management did not want to hear about load factors or memory constraints. It wanted vast improvements — and fast.

Servus decided to upgrade to Digital's new multiprocessor Alpha computer and its Digital Unix operating system, but Alpha was not due to ship for four months. So as a stop-gap measure, Servus bought two used 5900 computers and split its Progress Software Corp. production database between three 5900 machines.

"We began to limp along, mainly by staying below 70 calls on each system," Rusk said. "Then at night, we'd combine the data back together again."

When the Alpha box finally arrived in November, "we had guns to our heads," Rusk recalled. "We had no proof it would work, and the head of the company had already said our jobs were riding on this."

They saw the light

In early December, working with two programmers, Rusk loaded the first of the company's three Progress databases — upgraded to a new version — onto the Alpha machine. There were no major glitches or even minor problems. "I was pleasantly shocked," he recalled, especially because neither Digital nor Progress had officially sanctioned the version of Progress software that Servus was running on the Alpha.

The next weekend, Rusk and his team moved the contents of the second 5900 database to the Alpha machine. The weekend after that, they transferred the third and largest database, again without any problems.

"It was very scary because we were dealing with a new platform, a new operating system and a new major release of Progress. We were doing things you should never do in the IS world," Rusk said. Nonetheless, "it was a ridiculously short implementation period. It really was incredible."

The Alpha has made the most difference in the company's customer service department, according to loan specialist Neil Bombardier.

"Now, with the new system, you get responses immediately," Bombardier said. "The average customer waits seven seconds for an answer. The way the system is now, you'd never know anyone else was on it."

Getting that loan

The Servus process works like this: Students call in with demographic and financial data, and while they remain on the line, Servus prequalifies their loan application. This is done via a customized loan application analysis software package that runs on Servus' main processor. Servus also verifies callers' data with a credit reporting agency under a separate on-line application that runs on a DEC 5000/240 platform.

If everything checks out, a printed contract, complete with a return FedEx envelope, is sent to the applicant that evening from a processing center in Iowa City. The center is linked to the Herndon, Va., facility over a frame-relay network.

IBM System/390 processing costs drop 25%

Data centers report big savings on technology and personnel

By Craig Stedman

The cost of processing 1 million instructions per second (MIPS) on an IBM System/390 dropped a startling 25% during 1994, according to Nolan, Norton & Co.'s annual survey of mainframe data center spending

That figure, twice the average decline of the past five years, was driven by sharply lower technology prices and personnel cutbacks (see charts).

The Boston-based consulting company's findings struck an ear-pleasing chord with information systems managers such as Joe Waynick, assistant vice president of technical support at Union Bank in Monterey Park, Calif.

"Our cost of technology is way down," Waynick said. The bank is buying a new ES/9000 Model 832 from IBM for half the price it shelled out to get a 3090 600J four years ago, he added. That savings comes despite the fact that the ES/9000 is a 172-MIPS machine while the 3090 maxed out at 117 MIPS.

Union Bank is also increasing the level of automation in its data center, along with Huntington Bancshares, Inc. in Columbus, Ohio. "We have situations where we haven't filled open jobs because we can operate with fewer people," said Paul Moore, manager of data processing operations at Huntington's IS unit.

Waynick, Moore and other users noted that continuing increases in their mainframe workloads mean that actual spending is going down at a more modest pace, if at all. Nonetheless, the results can be impressive: Alamo Rent A Car, Inc. in Fort Lauderdale, Fla., kept its total data center spending flat last year even though its MIPS usage shot up by 35%, said Thomas Loane, vice president of computers and communications services.

Hildy Brand, a manager at Nolan, Norton, said the KPMG Peat Marwick subsidiary expects another spending decrease of up to 20% per MIPS this year from the one-two punch of declining hardware prices and personnel savings generated in part by data center consolidations and outsourcing deals. The one not-so-bright spot is the cost of system software, which continues to rise.

Data center technology trends

Total spending 1992 to 1993: down 6.3%* Total spending 1993 to 1994: down 25%*

Area	What happened in 1994*	Expectation for 1995
Workload	Up 9%	Data center consolidations and limited new demand will continue to increase workload about 5% to 10%.
Data center costs		
Processors	Down 27%	New CMOS technology and market pressures will sustain an annual decrease of at least 15%.
Disk storage	Down 36%	Average decrease of 15% as unit cost reductions are offset by investments in new technology
Tape storage	Down 32%	Introduction of new, more expensive technology, offset by continued reduction in demand, will net a decrease of 10%.
System software	Up 6%	Vendors will attempt to manage increases of 5% to 6% per year; software spending may equal processor spending by 1997.

Base: 150 data centers at Fortune 1,000 companies worldwide

*These decreases were per MIPS used within the surveyed data centers. The average data center used 125 mainframe MIPS during 1994. Actual spending and personnel reductions would likely be smaller because of increases in processing workload.

Source: Nolan, Norton & Co., Boston

Personnel in mainframe data centers

The total cost of processing in mainframe data centers went down 26% from 1993 to 1994; much of that reduction was related to personnel.

Personnel spending*
1992 to 1993: down 3.3%
1993 to 1994: down 28%

Total head count*
1992 to 1993: down 8%
1993 to 1994: down 20%

Staffing by function*
- Technical services: down 14%
- Operations support: down 17%
- Direct operations: down 27%
- Administration: down 27%
- Management and planning: down 20%

Base: 150 data centers at Fortune 1,000 companies worldwide

*These decreases were per MIPS used within the surveyed data centers. The average data center used 125 mainframe MIPS during 1994. Actual spending and personnel reductions would likely be smaller because of increases in processing workload.

Source: Nolan, Norton & Co., Boston

Information Builders, Inc. has announced EDA/Open Database Gateway for SQL Server 3.1, which supports Microsoft Corp.'s SQL Server 6.0.

According to the New York company, the product lets users of Windows NT tools and applications directly access relational or nonrelational data throughout an enterprise.

It gives desktop users access to remote databases or files through Microsoft NT servers. It also lets users warehouse data in Microsoft SQL servers, eliminating repeated requests to remote processors.

EDA/Open Database Gateway for SQL Server 6.0 costs $5,000.

▶ *Information Builders*
(212) 268-7470

Advanced Software Concepts, Inc. has recently introduced NetArchive-Hierarchical Storage Management (HSM) 2.1.

NetArchive-HSM was designed to free up disk space on networked file systems by automatically migrating files from workstation or server file systems to the mass storage devices on a network.

According to the Escondido, Calif., company, NetArchive-HSM 2.1 supports multiplatform heterogeneous networks and uses a distributed client/server architecture. It has three options for backing up file system data containing migrated files and their corresponding "stub files."

Pricing for NetArchive-HSM 2.1 starts at $3,000.

▶ *Advanced Software Concepts*
(619) 737-9544

Unison Software, Inc. recently announced RoadRunner 1.2 for Unix, a high-speed backup product.

According to the Sunnyvale, Calif., company, RoadRunner 1.2 for Unix is enhanced to support backup and restore to and from multiple IBM, Sun Microsystems, Inc. and Hewlett-Packard Co. Unix systems.

RoadRunner 1.2 costs $4,000, with a server agent priced at $2,000 and a client agent priced at $300.

▶ *Unison Software*
(408) 245-3000

Emass, Inc. has announced two automated media libraries, the Emass AML/E and the Emass AML/2.

According to the Englewood, Colo., company, both Emass AML libraries feature modular scalability and support multiple drive and cartridge formats in a single library. Both support most ½-in. tape cartridges. Cartridges can be mounted and dismounted in five seconds without the need for pass-through.

The AML/E has capacities for 360 to 11,520 cartridges and was designed for small to midsize data centers. The AML/2 was designed for larger installations and can handle 3,840 to 69,000 cartridges.

Pricing for the AML/E starts at $259,000. Pricing for the AML/2 starts at $474,000.

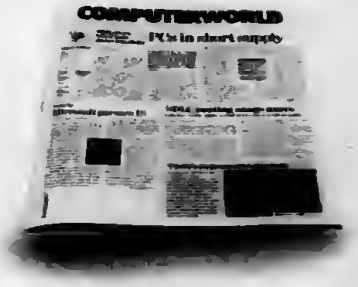
▶ *Emass*
(303) 792-9700

Princeton Softech, Inc. has announced Client/Server Import Facility.

According to the Princeton, N.J., company, the product works in conjunction with Princeton Softech's Move for IBM DB2 to extract data on the mainframe, download the data to a workstation and load it into a client/server database. All data conversions are automatically performed. Tables and dependent objects are created to match their mainframe DB2 counterparts. Client Server Import Facility supports the DB2/2, Oracle Corp. and XDB databases running under OS/2.

Client/Server Import Facility is packaged with Move for DB2. It costs $5,500 for an unlimited number of users.

▶ *Princeton Softech*
(609) 497-0205



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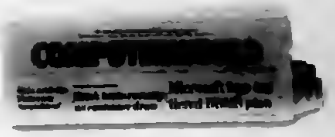

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JYACC moves tools to Mac, OS/2

By Rosemary Cafasso

JYACC, Inc. extended its cross-platform strategy earlier this month by adding Macintosh and OS/2 support for its Jam development tool set.

"We wanted something to handle multiple platforms," said Mark Breibart, a computer systems manager in the cardiology department at Children's Hospital in Boston who intends to test Jam on the Macintosh. "I didn't want a Windows-only product."

Cross-platform support is an increasingly critical selling point for client/server development tool sets because it allows users to accommodate what is frequently a mix of systems in a distributed environment.

Sybase, Inc. unit Powersoft Corp., for example, has taken some heat for being late with full cross-platform support for its popular PowerBuilder development tool set. Its Macintosh support, for example, should have shipped earlier this year and is now expected around midyear.

Unlike competitor Powersoft, JYACC is not well known and has yet to capture as much mainstream "mind share," analysts said. The firm was founded in the late 1970s and has about 12,000 Jam users at 4,000 customer sites.

Versions now shipping

New York-based JYACC already provided both development and deployment capabilities for Windows and a variety of Unix platforms. The Macintosh and OS/2 releases, which are shipping, can also support either development or deployment.

"This is filling out their stable of offerings," said Sandy Taylor, an analyst at Standish Group International, Inc. in Dennis, Mass. "Large enterprises have all the platforms — Macs, Windows, OS/2. What JYACC is saying is, 'We are really serious about the large enterprise.'"

For example, Allmerica Financial, Inc. in Worcester, Mass., is beta-testing Jam for the Macintosh so it can eventually include Macintosh users in the client/server human resources system it is developing, said Sam Bowden, an assistant vice president.

"Our original plan was to do only Windows, but this tool allows us to address the minority user groups," Bowden said. "We want to reach as large an audience as possible."

Jammin'

What Jam support for OS/2 and the Macintosh includes

- Development tool set to create three-tiered applications
- A function to deploy programs to multiple platforms
- JYACC prototyping database
- Driver to customer-selected database, including Oracle, Sybase, Informix or others

What it costs

- $2,000 per developer's seat
- No runtime fees

Flying high

Contractor on course with fighter jet thanks to configuration management tools

Hundreds of developers *are involved in writing code to run the avionics system for the Air Force's next-generation fighter plane, the F-22. The YF-22 (shown) is the prototype.*

By Elizabeth Heichler

When the U.S. Air Force's next-generation fighter plane, the F-22, goes on duty in 2004, there will be more than state-of-the-art hardware under the hood. The combat aircraft will also be running up to 1.6 million lines of code on a system that features a central "brain" with the computing throughput of two Cray Research, Inc. supercomputers.

To get a software job of that magnitude and complexity done on time and on budget, the project's prime contractor — Lockheed Martin Aeronautical Systems — is using a software configuration management tool, according to information technology managers at Lockheed.

Configuration management tools maintain a database of all the components of a software project, including different versions of code under development. The tools then track the status of these components in each stage of the development lifecycle — design, coding, debugging and testing.

Using configuration management tools on the F-22 project was imperative if Lockheed had any hope of bringing the project in at the price it had bid, said Warren Cannon, deputy chief for computer resources at the Marietta, Ga.-based operating unit of Lockheed Martin Corp.

Fighter plane feasibility

Configuration management tools offered the only feasible way to manage the complexity involved in the F-22 software project, managers said. That project includes hundreds of developers working for as many as 40 subcontracting companies located throughout the country.

Keeping all the software developers in sync — and ensuring that the pieces of code will work together when the time comes to integrate them into a whole system — is the Process Configuration Management Software (PCMS) package from SQL Software in Vienna, Va., Cannon said.

Benefits have included an increase in software developer productivity as well as payoffs that were not originally anticipated, Cannon said.

"We bid [the F-22 project] at double the productivity rate of previous projects, and we've delivered that," Cannon said. Further, the software sets up an automatic audit trail, and doing an audit — previously a cumbersome process that meant gathering "a jillion pieces of paper" — has become a simple matter of performing a database query, he explained.

Control tools

Lockheed's use of PCMS reflects a trend toward a new, more integrated form of configuration management, according to analyst Paul Mason at International Data Corp. in Framingham, Mass. "When you've got a large and complex software development process, you need tools that do more than version control; you need to be able to have control over the process," he explained.

Adopting the tool has meant a paradigm shift for developers, said PCMS user Bob Ventimiglia,

Air Force, *page 80*

Imagine if all data were local to your PC

That's what Microsoft's OLE is supposed to give you

By Stuart J. Johnston

Among the details of Microsoft Corp.'s recent disclosure of its enterprise computing strategy are some features users say they are really looking forward to.

Chief on the list is the promise that users will be able to treat all data, no matter what its location or storage format, as if it were local to their PC.

At the heart of the plan is Microsoft's extension of its vaunted OLE technology. The plan to add database extensions, previously code-named Nile, has now been officially termed OLE DB [CW, May 8].

One aspect of Microsoft's OLE initiative will be OLE DB, which will provide a common, transparent interface from the client to the server, allowing all types of data and platforms to be accessed.

Once OLE DB becomes a reality, a user would be able to pull into a word processor document one piece of data from a flat-file database residing on a mainframe and another from data in a relational database on a Unix-based minicomputer or a Windows NT-based server. Still other data could be imported from another user's spreadsheet across the network and even from a distribution list from an electronic-mail file.

The idea is that all of these data items could be imported using a single function — OLE DB — and it would all happen behind the scenes, transparent to end users.

If it works as planned, this capability will greatly simplify many of the types of tasks users will need to perform in an enterprise environment, some users said. That did not stop even enthusiastic Windows boosters from exhibiting a bit of skepticism, however.

"If they can pull it off, and we can truly have a universal data model, it'll be great, but performance is a big question," said Bill Cornfield, president of The Windows Support Group, a consultancy in New York.

Still, the idea appeals to computing managers because it aims to make their lives easier.

"The less that people have to think [about obtaining data], the better," said Briscoe Stephens, coordinator for space sciences in the Advanced Scientific Information Systems group at NASA in Huntsville, Ala. "Now we have to get some type of translator to bring these [types of data] in."

While many details of how OLE DB will work have not been made public, users are pulling for Microsoft to succeed.

"I don't see how anyone could help but be enthusiastic about such a thing," Stephens said.

Additionally, the overall idea of extending OLE to support OLE DB as well as perform other functions — such as handling distributed transaction processing — appeals to users. Plans to provide that support were also announced at the Microsoft briefing in early May.

"The combination of distributed transaction processing and workflow automation capabilities is an important technology that will empower our users," said Bill Estrem, a specialist in the corporate information architecture organization at 3M in St. Paul, Minn.

Release dates start in about a year

Microsoft will begin shipping a developer's kit for OLE DB in the first half of 1996, said Jeff Alger, senior product manager for OLE. Other features will take longer, including transaction management support, which will not result in products until 1996 or 1997.

Further, some pieces of the puzzle will not be available until the next major release of Windows NT Server ships in 1996 or 1997. That version, code-named Cairo, will provide an object-oriented file system and support for OLE functions over networks. This support was previously called Distributed OLE and has now been renamed Network OLE.

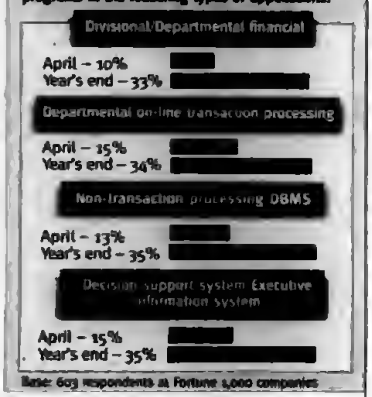
When Cairo ships, objects inserted into other OLE-enabled applications will pick up another new, security-related feature. Specifically, objects linked or embedded into another file will retain their original level of security, no matter what the new file's security level is.

For example, a company's accountant could create an E-mail message to the company president. An OLE object of the company's current financial statement could be included in that message. If the original financial statement had its own security level, the object inserted into the E-mail message would have that same security level, making it much less likely for a rogue employee to hack into the E-mail system and access the financial data in the message.

"This will help me prevent people from screwing around with [financial] numbers," said Cornfield, whose firm has built salary compliance systems for major sports organizations.

Data View

Users surveyed in April were asked whether they had immediate or year-end plans to pilot object-oriented programs in the following types of applications:



Base: 603 respondents at Fortune 5,000 companies

Source: Sentry Market Research, Westbury, Mass.

Europe not ready for multimedia

By Cara A. Cunningham

CANNES, FRANCE

Although Apple Computer, Inc. chose a European site — the French Riviera — as the launchpad for its worldwide New Media Forum tour, a number of European executives concurred that the multimedia industry here is not yet ready for takeoff.

Cultural differences, generation gaps, tightly regulated telecommunications infrastructures and even the cost of local telephone calls are preventing Europe from exploiting much of the potential promise of the multimedia age, said executives of major European publishing houses who recently spoke here.

"There are big cultural differences here that you have to take into account."

— Othar Muller von Blumencron, vice president of on-line services, Bertelsmann AG, on why Europe isn't ready for the "new media"

Apple's term "new media" refers to the meshing of sound, video, images and text on-screen, as well as to new forms of getting information and communicating, such as on-line services and new distribution methods like CD-ROM titles.

Hoping to capture the lion's share of this emerging market around the world, Apple recently embarked on a four-city tour to tout its hardware, software and tools tuned for multimedia. The Cupertino, Calif.-based company hopes to win over not only traditional computer programmers, but also artists in the music, literary and fine arts worlds who are looking to experiment with a new medium for their creations.

Europe may not be the place to start, however.

Today's roundtable discussion, which included executives from corporations already making big pushes into the multimedia world, seemed interested in — yet skeptical about — the potential of the technology.

"We are not yet fully taking advantage of the opportunity; the market, to be honest, is not yet there," said Francesco Tato, chief executive officer of the Mondadori Group, an Italian publishing and broadcasting company.

While the group of executives agreed that Europe's multimedia industry has some serious hurdles to jump, views differed on just what those hurdles are.

In Europe, a generation gap exists between today's average worker and children who are growing up on video games and surfing the Internet, said D. Helmut Fluhrer, chief of staff at Burda GmbH & Co., a German publisher and part owner of the Europe On Line service, which is expected to be launched later this year.

The gap manifests itself in how open workers are to new technologies: While children in the computer generation may be comfortable with new processes such as teletraining and videoconferencing when they get jobs, many of today's workforce still prefer traditional methods, he said.

Language barriers

Europe's diversity, while a source of pride, also hinders the adoption of new distribution methods because on-line services and CD-ROM titles must be translated to suit each local market, said Othar Muller von Blumencron, vice president of on-line services at Germany's largest publishing house, Bertelsmann AG.

Also, there are certain activities, such as shopping, that Europeans want to do locally and would not look to on-line services to provide, he explained.

Other inhibiting factors are the low penetration rate of PCs into European homes and telecommunications costs that are twice as high as those in the U.S., he said. Executives here also gave voice to the popular cry to deregulate state-run telecommunications to open up the market to competition.

But one observer disagreed, at least in part. "I don't agree that deregulation is such a big issue; for example, we're delivering Europe On Line now," said Pierre Bouchiex, vice president of research and technology at Matra Hachette, a French publishing company and Europe On Line partner. "I do agree that cost is a real issue; local calls are very expensive in Europe."

Cunningham writes for the IDG News Service in Paris.

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Software battle dogs DOD

Development, maintenance still problems, but victories are at hand

By Bob Brewin
SALT LAKE CITY

The U.S. Department of Defense still faces a severe "software crisis," according to speakers at the annual tri-service Software Technology Conference.

But, they added, the DOD and its affiliated armed services have started to lay the groundwork for developing some mastery over their estimated $30 billion to $40 billion annual investment in software acquisition, maintenance and development.

Dianne McCoy, deputy commander for the Defense Information Systems Agency's (DISA) Center for Software, told attendees, "We have not made great strides in developing software ... [and] we tend to build inefficient programs."

As the largest enterprise in the world, the DOD will become even more dependent on software in the future, according to speakers at the conference, which was sponsored by the Army, Navy and Air Force and hosted by the Software Technology Support Center at Hill Air Force Base here.

Maj. Gen. Otto Guenther, the Army's director of information systems for command, control, communications and computers, said that in the future, the digitized Army "will be driven by software ... and we just aren't getting it right the first time."

The Army has 325 battlefield information systems that collectively run on more than 100 million lines of code. "I don't see our software [requirement] getting any smaller; I see it getting bigger," said Maj. Gen. Otto Guenther, the Army's director of IS for command, control, communications and computers.

Still, the DOD has made progress in resolving some of its basic software problems, conference speakers said. After a slow start in developing a library of standard data elements, DISA has begun to turn the corner. The agency now has 2,170 standard data elements, up from just two in September 1993, and "has put together a tiger team to capitalize on data elements. We expect to have between 7,000 and 7,500 by this September," McCoy said.

The Ada programming language holds out hope for developers of large-scale, complex systems, according to Rear Adm. Scott Sears, commander of the Naval Underseas Warfare Center. Sears supervised development of the Submarine Combat System, also known as AN/BSY-2, for the new Seawolf submarine, which he called "an Ada success story." The Seawolf runs on 5 million lines of code on more than 100 distributed Motorola, Inc. processors hooked to thousands of sensors.

Brewin writes for *Federal Computer Week*, an IDG publication.

Air Force

CONTINUED FROM PAGE 75

environmental control systems control software manager at Lockheed. Developers are "used to working reactively, but this tool makes you proactive," he explained.

In particular, because the tool provides a mechanism for implementing the software development plan, developers logging in to the PCMS database know specifically what changes they are able to make and what processes they are able to carry out without needing to first seek approval or wait for directions.

Automatic reviews

Another unexpected benefit of using PCMS, according to Ventimiglia, was "we now have totally electronic review boards. The chair sends out a message to the review board members and invites them to add their comments by a certain time."

The software package automatically generates meeting announcements and captures the minutes or comments made by board members.

Although software developers throughout the F-22 project now use PCMS, getting 40-plus subcontractors to work in harmony using the same control tool was not without challenges, Cannon acknowledged. The difficulties were overcome with "lots of communications — and occasionally a bat," he added.

Company stats

Lockheed Martin Aeronautical Systems' parent company Lockheed Martin Corp., with headquarters in Bethesda, Md., is the world's largest defense company. A $10 billion merger, completed in March, joined Lockheed Corp. and Martin Marietta Corp. The company now has about 175,000 employees, with annual sales of $23.5 billion.

Blue Sky Software Corp. has introduced the WinHelp Tool Kit for Windows help authors.

According to the La Jolla, Calif., company, the WinHelp Tool Kit lets help authors decompile, debug and inspect any help file. It has a Help-to-Word feature that converts a Windows Help file (.HLP) into a Microsoft Corp. Word document file (.DOC), including font types, sizes and colors, character formatting, tables and graphics.

Additionally, it has a WinHelp Graphics Locator to let authors search for graphics in a specific directory, drive or across multiple drives. It also contains a graphics library and a style guide providing tips on creating help systems.

The WinHelp Tool Kit costs $199.

▶ *Blue Sky Software*
(619) 459-6365

AimTech Corp. has announced IconAuthor 6.0 for Unix, a multimedia authoring tool.

According to the Nashua, N.H., company, the product lets Windows, OS/2 and Unix users run and edit interactive multimedia applications developed and stored on a Unix system. This lets IconAuthor developers create on one platform and play on another without converting files.

IconAuthor 6.0 for Unix provides full-text graphics, animation, video and audio support. Features include Audio Object for sound control and Movie Object for digital video clip playback control.

IconAuthor 6.0 for Unix supports a range of Unix platforms, including Sun Microsystems, Inc.'s Solaris, Silicon Graphics, Inc.'s Irix, Hewlett-Packard Co.'s HP-UX, Digital Equipment Corp.'s Alpha/OSF 1 and IBM's AIX.

IconAuthor 6.0 for Unix costs $4,995.

▶ *AimTech*
(603) 598-8402

CASE Methods Development Corp. has released Synergy 3.1, a software process management system that supports electronic mail and Notes.

According to the Richardson, Texas, company, Synergy 3.1 is a client/server management tool that lets team members collaborate on one or more projects. It tracks and manages products during a project, including deliverables, change requests, problem and issue statements and quality inspection reports.

Synergy 3.1 features include a to-do list, a time reporting system and estimation capabilities with automatic capture of metrics. It also allows direct access to users' computer-aided software engineering (CASE) tools such as Texas Instruments, Inc.'s Information Engineering Facility and Sterling Software, Inc.'s KEY (ADW).

Synergy 3.1 is delivered with CASE/Framework, a set of methodology guidelines covering several deployment paths.

It runs on Windows and Windows environments on OS/2.

Pricing for Synergy 3.1 starts at $54,000 for five users.

▶ *CASE Methods Development*
(214) 437-9700

Interactive Development Environments, Inc. has announced Software Through Pictures for Business Process Reengineering (STP for BPR), a development platform based on the company's STP software development tool set.

According to the San Francisco company, STP for BPR lets database and application developers work in their own environments and automatically generate their respective SQL database code or C++/Smalltalk application code.

STP for BPR features Object-Entity Interchange, which provides automated capabilities to create business process models and then ensures model sharing between database developers and object-oriented application groups.

Pricing for STP for BPR begins at $30,000.

▶ *Interactive Development Environments*
(415) 543-0900

Sapiens International Corp. has announced Sapiens ObjectPool.

According to the Durham, N.C., company, ObjectPool is an application development tool that provides a database-independent view of live mainframe data from client/server environments. It lets users encapsulate mainframe data stored in a database management system, effectively transforming the data into a framework of intelligent objects that can be used as building blocks in client/server applications.

ObjectPool was designed to offer an alternative to data replication and gateways for customers who need to deliver client/server applications integrating mainframe data and processing.

ObjectPool's open system architecture lets users develop applications providing access to data regardless of platform or DBMS.

Pricing starts at $37,500.

▶ *Sapiens International*
(919) 405-1500

Product shorts

XVT Software, Inc. has released Development Solution for C++ 3.2. It includes the application framework XVT-Power++3.2, the XVT-Architect 1.0 visual programming tool and the Rogue Wave Tools.h++ library of data structures. Cost: Licensed on a developed-seat basis starting at $2,325 for PCs, $7,500 for workstations. XVT Software, Boulder, Colo. (303) 443-4223. ... **The MathWorks, Inc.** recently announced Matlab 4.2C for the Macintosh, a version of the Matlab Technical Computing Environment that includes native-mode support for the Power Macintosh and 68000 series Macintosh computers. It also offers a notebook interface for Microsoft Corp.'s Word. Cost: Begins at $1,695. The MathWorks, Natick, Mass., (508) 653-1415.

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Providing the means to deliver accurate and timely information to improve work processes and make better business decisions is the job of George Alameda, Chevron U.S.A. Production Company's Manager of Information Technology.

The company is using the SAS System to help with enterprise-wide information delivery. "Our mission is to make financial, operational, and reservoir data available in an easy-to-use format to all the asset teams at work in CUSA Production Co.," says Alameda. "We've found the SAS System is a superior solution for analyzing data, turning data into useful metrics, and guiding our cross-functional teams toward improved work processes."

One team, in CUSA Production's Western Business Unit, is tracking the profitability of individual wells. "It's a tremendously difficult task to optimize our field operations for maximum profitability," says Alameda. "With the SAS System, we can integrate large amounts of data and build a picture to compare one field against another and challenge our asset teams to identify and share best operating practices."

Reaching for the Best

Alameda looks forward to extending the use of the metrics and performance monitoring data to employees trying to improve their work processes. He admits his vision is far reaching, but so is the SAS System. "Our challenge is to be better than the best," he concludes, "and the SAS System is helping us reach that goal."

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Hello cruel world

PAUL WATSON

Forget job security. Shred your job description. Say good-bye to company loyalty. And don't take your paycheck for granted.

by **Rochelle Garner**

STORYLINE: In five years, the bulk of America's IS work will be done by temps and contractors. Is this the end of the traditional IS career? Many CIOs and analysts say yes. You may not agree with their harsh conclusions, but you can't afford to ignore the warning.

Jim Bair has glimpsed the future of IS, and it isn't pretty: an ever-speeding treadmill of advancing technology that grinds down the slow and timid.

A growing pool of information systems workers kicked out of the organizations in which they've spent years.

No more job security, company loyalty or professional honor — just a world that crushes the average and the merely good into bite-size chunks.

And then you die.

"The world is changing from a caring social place to one of total Darwinian natural selection. You are expendable if you don't stay ahead," says Bair, research director of electronic workplace and advanced technology at Gartner Group, Inc.'s Bay Area Research Center in Santa Clara, Calif.

The catalyst for this destruction of the status quo? The growing shift to contract IS workers, be they systems integra-

Hello, cruel world, *page 85*

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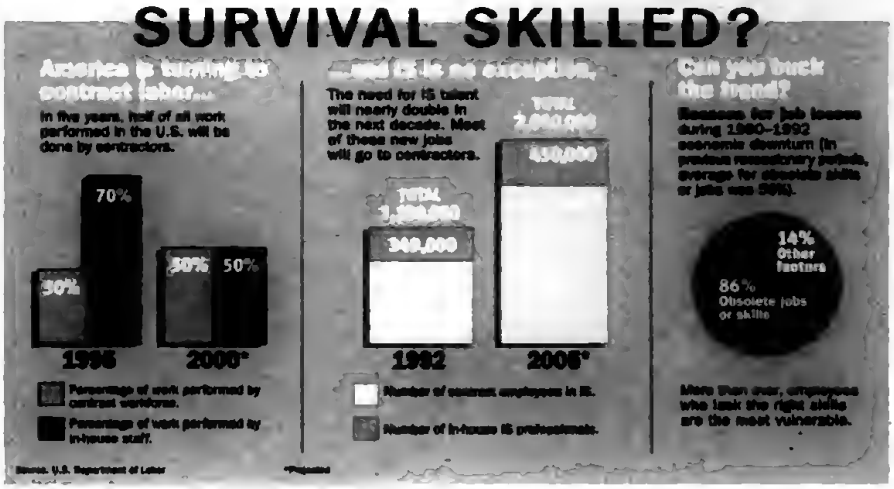

"Companies are moving to contractors because you can't always be sure of the talent or the numbers you will always need," explains Larry Loehrke, director of business systems for retail and distribution at Owens-Corning Fiberglas Corp. in Toledo, Ohio. "If our employees really want to work with technology, we suggest they join a consultant company that will keep them up to date. The people who will remain here are the ones who bring a unique set of knowledge about the company and how technology will help grow the business."

The result is the need to trim the fat in corporate IS—except the fat in this case is an information technology staff well versed in unnecessary skills.

"Companies are moving toward this contingent workforce to cut labor costs and, in particular, to cut benefits packages," says Joe Coates, president of futurist research firm Coates & Jarratt in Washington. "IS staff are particularly expendable since most perform operating functions rather than line functions. And relative to their numbers, middle managers will be the hardest hit."

Hello, **cruel** world

CONTINUED FROM PAGE 83

tors, outsourcers or temporary workers. And the way Bair sees it, that external labor pool, combined with quicksilver skill sets, is setting up the world's IS workforce for a painful transformation.

"The Internet will become the auction yard for a digitally networked labor pool that transcends any regulatory and cultural barriers. Ultimately, we're removing the social safety nets for those people who can't find reemployment," Bair says.

So who is Bair to voice this unspeakable scenario of doom? He is someone who has spent 27 years studying the transformation of organizations and society. As such, he joins the ranks of the few IS executives and pundits who have contemplated the ramifications of a swelling outside workforce fueled by the demands of downsizing and technology obsolescence.

YOU ARE EXPENDABLE

the good news is not everyone concurs with this Darwinian view of wholesale unemployment in corporate IS. The bad news is everyone – analysts, high-level IS executives and professional futurists – does agree on two unassailable facts: First, job security is now a fading memory. And second, the days of the "pure technologist" in corporate IS are numbered.

Without exception, IS executives say, those two dynamics will force an increasing reliance on outside IS organizations for services from the mundane to the critical. This outward focus, all agree, will render huge holes in the current organizational fabric—changing the very nature of work itself.

Many of those contractors will be IS professionals who today have no intention of abandoning their familiar corporate surroundings. The reason? Budget-conscious companies can no longer afford people whose IS skills are near obsolescence or are necessary only for spurts of creativity. Now throw in corporate America's thrust to become more nimble, and you have a new premium placed on smaller yet more responsive IS departments.

NITTY-GRITTY BUSINESS SKILLS

make no mistake, this massive labor shift will occur. Now the question arises, "How will it affect those who remain?"

For starters, they'll need a new blend of managerial skills. Accent on the word "blend." Tomorrow's managers must command a keen grasp of project management, technology and business skills, according to pundits and senior executives.

The survivors will be "the ones who are really agile at managing the boundary between the systems and the business worlds," says Michael Treacy, co-author of *The Discipline of Market Leaders* and president of Treacy & Co. in Cambridge, Mass. "They will have to walk and talk technology but really know the business issues."

If you think this sounds familiar, then think again. The kind of skills being talked about extend way beyond the current lip service of understanding the company's business.

Soon, IS managers must become as well versed in the intricacies of costs, profitability and product mix as the marketing and manufacturing managers they support, says Claude Marais, director of processing ser-

> **"The Internet will become the auction yard for a digitally networked labor pool that transcends any regulatory and cultural barriers. Ultimately, we're removing the social safety nets for those people who can't find reemployment."**
>
> **JIM BAIR**
> Research director of electronic workplace and advanced technology at Gartner Group's Bay Area Research Center, Santa Clara, Calif.

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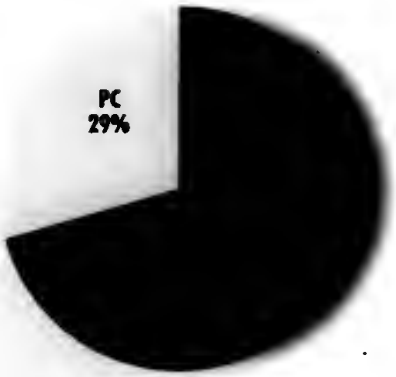
HOW DO WE KEEP CO



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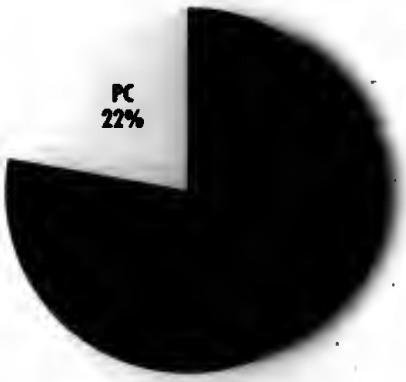

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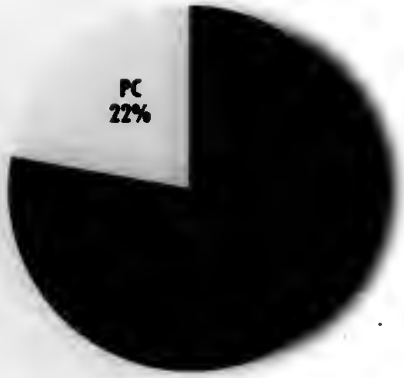

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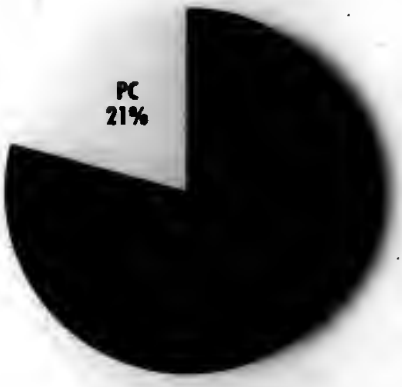

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The Newspaper of IS

Hello, **cruel** world

CONTINUED FROM PAGE 85

vices and planning in the information services department at Elf Atochem North America in Philadelphia.

"At every level, IS managers will have to be adept at negotiations, contracts and procurement management. They'll have to understand return on investments, the competitive forces in the market and the tax implications for the services they are contracting," says Marais, who heads all of the company's IS planning, budgets, procurement and contracts.

Marais' point about skills penetrating every level is an important one. The reason is the changing function of the internal organization away from developing and implementing systems to a new role of identifying and acquiring technology.

In essence, the business of IS will become the business of project management, overseeing the work of others who draw their paychecks from an outside company. The result: a more even distribution of power and authority among those who remain.

"Now that you've lopped off the bottom eight levels of the hierarchy, authority doesn't go down as far," says a vice president of strategic technology at one of the nation's largest banks.

"Yes, you give up power, but that power isn't as important as it once was because the roles of doers and managers will grow together," says the executive, who asked not to be named, concerned about employee reactions to his musings.

It's already happening at Elf Atochem. There, IS staff handle their usual technology functions, work with their internal partners and develop relationships with contractors, says Robert Rubin, vice president of information. "And because our staff is expected to offer guidance, we've increased their responsibility and their value to the company. That increases the likelihood that they will want to stay with us a long time," Rubin says.

WHAT GOES AROUND . . .

it is the height of irony that, as corporations tear up the unspoken contract exchanging job security for employee loyalty, they will face a much harder time keeping the staff they want.

"If I'm the creme de la creme, why would I want to work for a bank?" Treacy says. "I'd rather go work for a place like [Electronic Data Systems Corp.] or Arthur Andersen where I could have a serious career." And therein lies the dilemma for corporate IS organizations: What new value can they offer to hang on to their brightest stars?

Jim Nisbet, vice president of IS at Monsanto Corp. in St. Louis, says he is only now beginning to tackle that issue. And to be sure, he has his hands full, in that the company began a corporatewide re-engineering effort last month. Still, Nisbet recognizes the major implications for his organization: a greater emphasis on developing workers' skills and career opportunities and keeping top staff.

"They might decide it would be better to work for an outsourcer," Nisbet says.

Indeed they might. What's more, candidates for those outsourcer paychecks will fall into two camps: those who don't want to jump on that speeding freight train of constantly evolving skills and those who do. The first group, for example, can find plenty of data processing outsourcers now making good money running Cobol applications. Of course, those who choose that route should be relatively close to retirement age because this kind of work won't last much longer.

And the second group?

"Consultants are the only ones that will spend the kind of money needed to keep those skills up to date," Loehrke says. "Pure technologists are jeopardizing their careers by staying in corporate IS because the corporation can't guarantee it can train [employees] the way they need."

For technical people who don't want to become project managers or learn the fundamentals of corporate finance, the choice comes down to which organization offers better training opportunities.

"Job security no longer lies within the corporate structure; it now lies within the individual," says Bruce Steinberg, spokesman for the National Association of Temporary and Staffing Services in Alexandria, Va.

"Smart people will base their employment decisions on their opportunities to learn new skills," he says. Or put another way: Companies that decide to hone the cutting edge of technology must commit to nonstop training, regardless of cost. To do otherwise risks losing the very people they most depend on.

TOO COSTLY TO KEEP

many companies will decide that keeping their employees skilled is a cost they can't bear. So they will turn to the increasingly competitive world of integrators, consultants and outsourcers.

"Better and better suppliers are emerging who can either do the work you could but cheaper or do the work better than you," Treacy says. "That's great because it gives companies greater control over the services they buy."

Greater control? Surprisingly, it's true — as long as companies adopt measures that hold their outsourcers accountable for what they deliver. That means no longer buying services based on an hourly rate, but on results. Need a new payroll system? No problem — as long as everyone agrees precisely on what has to be done.

At Elf Atochem, it's all spelled out in the contract. And that means everything: from performance criteria to operating procedures to acceptable error rates — with penalties to the outsourcer if it fails to deliver. That contract, by the way, also serves as the method for Elf Atochem's internal resources to manage the project.

> **"At every level, IS managers will have to be adept at negotiations, contracts and procurement management. They'll have to understand return on investments, the competitive forces in the market and the tax implications for the services they are contracting."**
>
> **CLAUDE MARAIS**
> Director of processing services and planning, information services department of Elf Atochem North America, Philadelphia

It works because before Elf Atochem ever finalizes a draft of the contract, it shows the document to the people who will manage the project. "We then ask our people, 'Put down how you'll know the outsiders are doing well. Tell me how you will measure it,'" Rubin says.

Granted, this focus on performance management is nothing new. But in a world where project management predominates, this focus will become pivotal.

This, then, is the shape of tomorrow's leaner IS organization: a world of vanished job security with a greater emphasis on MBA-type skills and project management. Those who no longer fit in the corporations to which they've dedicated years will find themselves in the company of outsourcers, consultants and systems integrators. Whether this is the dawning of a new age of Darwinism is open to debate. But without question, life will be different. ■

Garner is a freelance writer in San Carlos, Calif.

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23 Dir./Mgr. Sys. Development, Sys. Architecture
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The First Annual Microsoft Foundation Classes (MFC) Developers Conference. Santa Clara, Calif., May 31-June 2 — Contact: MFC Developers Conference, Minneapolis, Minn. (800) 206-3000.

1995 Business Re-engineering Conference. New York, June 1-2 — Contact: The Conference Board, New York, N.Y. (212) 759-0900.

JUNE 4-10

Worldwide Personal Communications: Fundamentals of Wireless. Chicago, June 5 — Presented by the International Engineering Consortium. Contact: ComForum, Chicago, Ill. (312) 938-3500.

Architects/Engineers/Contractors (A/E/C) Systems '95. Atlanta, June 5-8 — Exhibit focuses on the technological needs and interests of architects and designers, contractors and construction managers, mechanical/electrical/structural engineers, geographic information system and mapping professionals, civil engineers and surveyors, process and power engineers and facilities managers and owners. Contact: Sharon Price, A/E/C Systems '95, Newington, Conn. (203) 665-0153.

M Technology Association's (MTA) 24th Annual Meeting and Exposition. Chicago, June 5-9 — Topics include object-oriented software engineering, connector technology, event-driven programming for graphical user interfaces, embedded SQL and M, Visual M programming and M window programming in a kernel environment. Contact: MTA of North America, Silver Spring, Md. (301) 431-4070.

Worldwide Personal Communications: Transforming the Vision into Reality. Chicago, June 6-8 — Dual conference. The theme for June 6-7 is "Transforming the Vision into Reality," and the theme for June 8 is "Wireless/Wireline Integration." Contact: ComForum, Chicago, Ill. (312) 938-3500.

JUNE 11-17

Computerworld Corporate Technical Recruiting Conference. Englewood, Colo., June 11-14 — Contact: Derek Hulitzky, *Computerworld*, Framingham, Mass. (508) 879-0700.

International DB2 Users Group 7th Annual North American Conference: Star of the Enterprise. Orlando, Fla., June 11-15 — Seminars include "Tuning Very Large DB2 Systems," "Replication in Mixed Database Environments" and "Client/Server — What Really Works." — Contact: International DB2 Users Group, Chicago, Ill. (312) 644-6610.

Third Annual North American Information Technology Outsourcing Conference. San Francisco, June 12-13 — Contact: Amy Arnell, Frost & Sullivan, (415) 961-9000.

NETSEC '95. New Orleans, June 12-14 — Seminars include "Telecommunications Fraud and Toll Abuse — How Costly Is It?" "How Hackers and Phreakers Enter and Leave Your System," "Laws That Are In Place to Protect You: What They Mean?" and "Tip-offs That Can Alert You To Potential PBX Fraud." Contact: Computer Security Institute, San Francisco, Calif. (415) 905-2626.

Forum on Telecommunications Practice. New York, June 13 — Contact: Ameena Mustafa, Polytechnic University, (718) 260-3050.

ITCA '95. Washington, June 13-16 — Contact: Stewart Herbert, International Teleconferencing Association (ITCA), McLean, Va. (703) 506-3283.

11th Annual North American Conference for Third Party and Multivendor Computer Maintenance. San Francisco, June 14-15 — Contact: Amy Ar-

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

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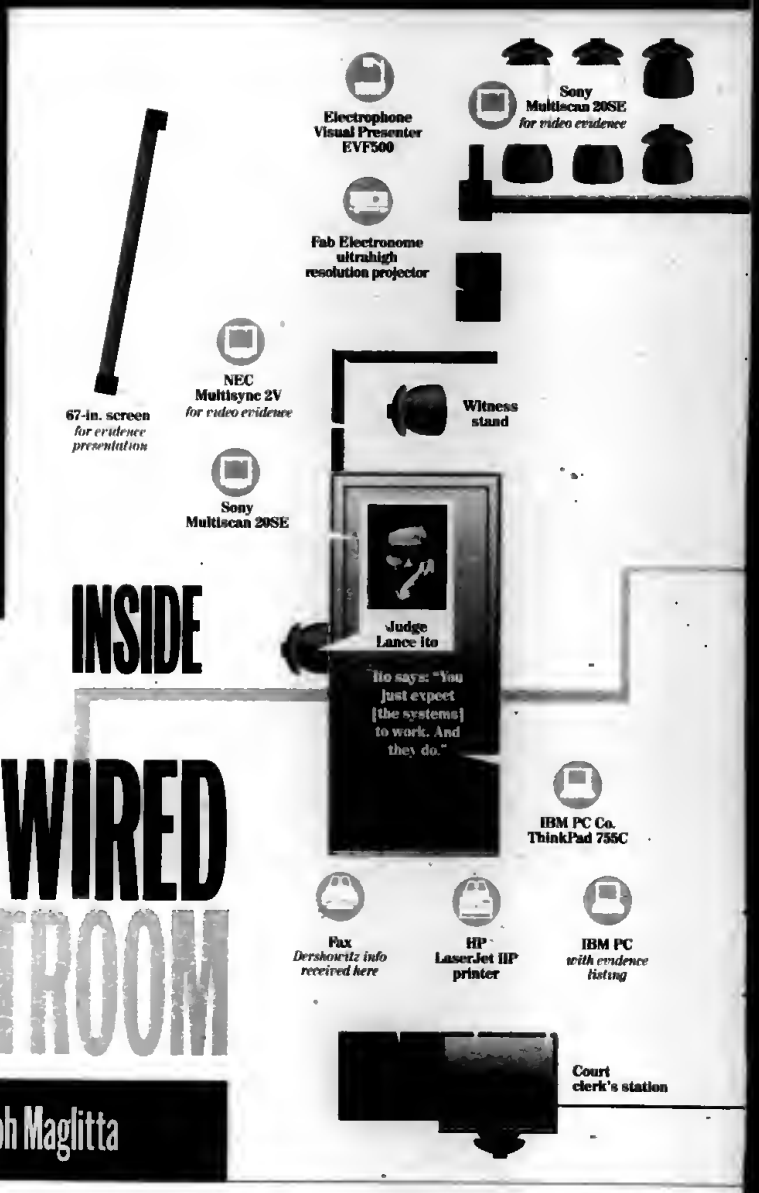


INSIDE THE WIRED COURTROOM

By Joseph Maglitta

CONTINUED FROM PAGE 1

on national news," says Nichols, manager of technology assessment at Los Angeles Superior Court. "The other day Barbara Walters sat in the back of the courtroom."

On many days, the men must wade through "O.J. City" — the gawkers, T-shirt hawkers and media talkers who clog the entrance to the Criminal Courts building at 210 W. Temple St. "It can take 20 minutes to get into the building," Nichols says.

Hannawi, systems administrator for the county's superior criminal courts, says two or three bomb scares have disrupted the trial.

Nichols, like his colleagues, must show his badge and driver's license to enter the heavily guarded ninth-floor courtroom where the Simpson double-murder trial is being held. Hannawi, who's been dubbed "Prince of the Criminal Court Build-

WITH ONE SUPPORT PERSON PER 600 USERS AND A FISTFUL OF MAJOR PROJECTS IN THE WORKS, THE L.A. COURT IS STAFF IS SPREAD THIN

ing" by IS peers, has universal access.

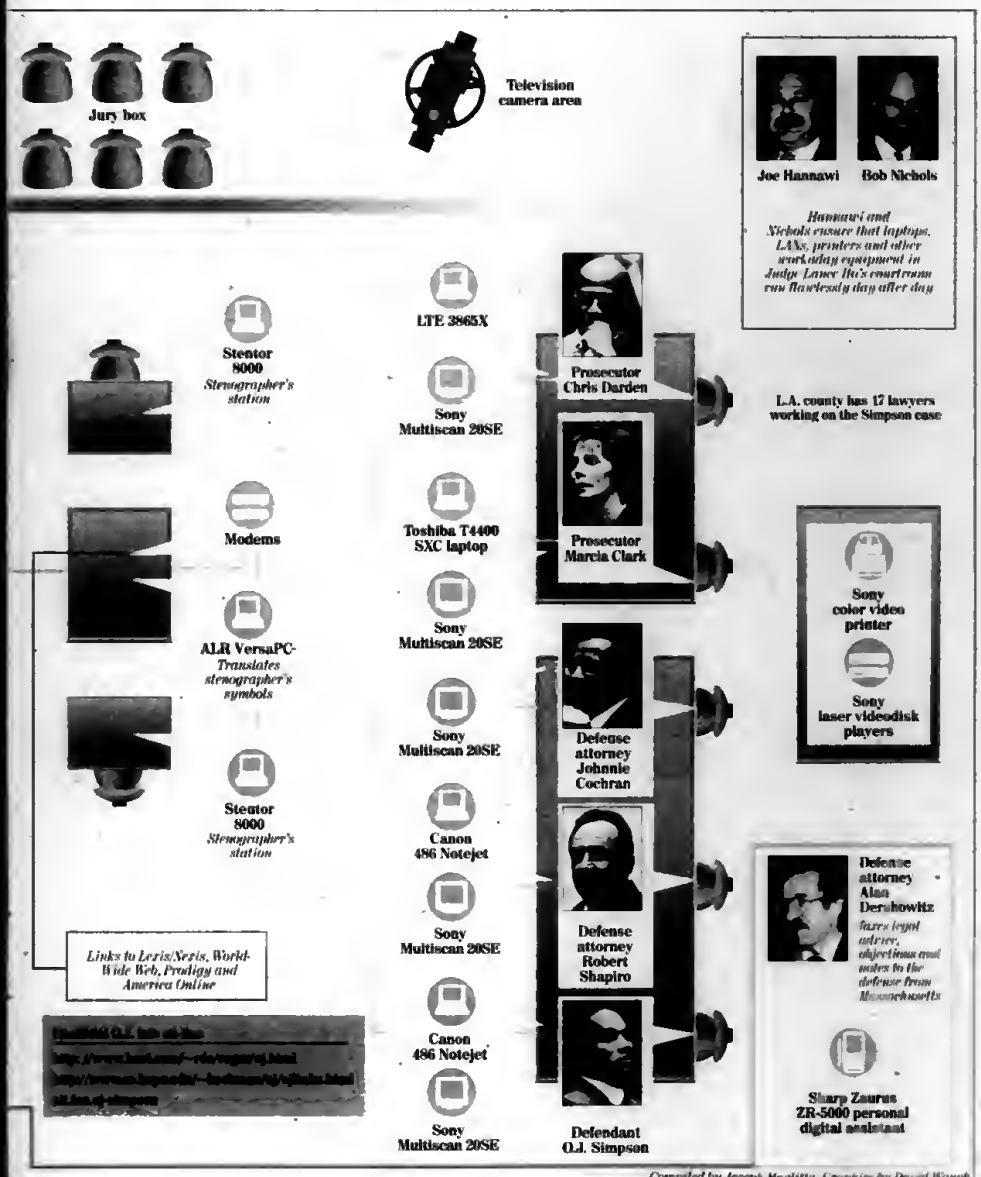
This high-tech courtroom — known officially as Department 103 — is the center of a digital geyser that streams data and images almost nonstop to Nexis/Lexis, CNN, Court TV, E! Entertainment network and eventually to America Online, thousands of network and local TV stations and dozens of Internet sites and World-Wide Web pages.

From a modest corner of this electronic circus, the pair ensures that laptops, LANs, printers and other workaday equipment in Judge Lance Ito's courtroom runs flawlessly. Crashes and other glitches can mean embarrassment before a live international audience.

On a recent day, Hannawi and Nichols also became technological tour guides and co-hosts for me.

"Hello, I'm Judge Ito," the 20th century's best-known jurist says, shaking my hand. A moment earlier, he'd been sitting in the jury box, munching cold shrimp with a dozen or so other judges lunching together on this rare afternoon off.

As Hannawi and Nichols look on, the judge stops behind his desk — the bench. "I have two IBM laptops," Ito says. "The equipment's all loaned. I won't use them again after the trial."



Compiled by Joseph Maglitta. Graphics by David Waugh

Easy to identify

Anyone who's seen even brief televised clips of the proceedings will instantly recognize the color IBM PC Co. ThinkPad 755C cocked open at the judge's robed elbow. It is the most visible sign of the most wired courtroom in the world's largest court system. "It's all product placement," Ito says of the loaners. "They get to show their goods."

Suddenly he turns serious. "There are no games on [my PC] — contrary to what ["Tonight Show" host Jay] Leno says." I remind him that the system's Windows program includes Solitaire and Mine Sweeper. "I don't play games," he says, firmly. "There's a lot going on up here."

From behind the bench, you see what he means. Screens and live action vie for attention. A real-time feed of the translated trial transcript is sent, via modem, from the court stenographer's computer a few feet away into Ito's 755C. It's then automatically saved to disk and memory. To Ito's left, on the floor, a 15-in. Sony monitor shows video evidence.

The judge can control the microphones and TV cameras mounted high on the walls. It is an electronic cockpit.

Now you see it, now you don't

Sharp-eyed viewers will recall that early in the trial, Ito's laptops created a brief mini-mystery. Thanks to court reorganization last October, Ito was obliged to return a Toshiba Satellite 1850 that belonged to the municipal courts. "Everybody saw the Toshiba," Nichols says. "Then it disappeared."

So IBM, Toshiba and Compaq Computer Corp. were invited to provide new units for "extended evaluation." Says Nichols: "An IBM West Coast vice president called back in two hours."

An IBM 360/C now sits nearby, close

IS at O.J. City, *page 94*

Computerworld Editorial Calendar

July - September, 1995

Issue Dates	Ad Closings Color*	Ad Closings B&W	Editorial Features & Custom Publications	Show Distribution & Ad Readership Study Issues
July	June	June	**CW Guide To: PDAs** Personal Digital Assistants, the latest evolution of microprocessor power in a small package, present unique buying options and support issues for IS organizations. This Guide will examine the leading products and tasks IS has in selecting and managing them. **Buyers' Satisfaction Scorecard:** Market leading PDAs **Firing Line:** Newest PDA from a leading vendor	
July	June	June	**Closer Look:** Unisys	Starch Study
July	June	July	**CW Guide To: DBMS** The focus of database management systems is as the server for a variety of applications. Depending on the application type, IS organizations face varied buying decisions. We will examine which databases match which application needs best and analyze the leading products in each area. **Buyers' Satisfaction Scorecard:** Market leading SQL database mgmt systems for midrange servers **Firing Line:** Latest DBMS from a leading vendor	
July	July	July	**Closer Look:** Power Macintosh	**Enterprise Computing** Chicago 7/26 - 7/28
July	July	July	**CW Guide To: Workgroup and Collaborative Software** Beyond e-mail and document management users are seeking products that help them manage business processes and work as teams. This Guide will examine how well the vendors are meeting this need. **Buyers' Satisfaction Scorecard:** Market leading workgroup software **Firing Line:** Latest collaborative product from a leading vendor	
Aug.	June		**Computerworld Client/Server Journal** **Vertical Market Focus:** Insurance **Section Feature:** Product Focus on Networking	Object World Networks Expo Interop + Networld Unix Expo Harvey Study
Aug.	July	July	**Special Report:** Re-engineering the Workplace	
Aug.	July	Aug.	**CW Guide To: Desktop Databases** Personal databases that act as front ends to company applications and DBMS, as well as PC-based packages that serve the needs of workgroups or departments will be examined with the focus on IS buying decisions. **Buyers' Satisfaction Scorecard:** Market leading desktop databases **Firing Line:** Latest DBMS from a leading vendor	**Object World** San Francisco 8/15 - 8/17
Aug.	Aug.	Aug.	**Closer Look:** Sun Workstations	
Aug.	Aug.	Aug.	**CW Guide To: Client/Server Financial Applications** One of the first applications companies move off of the mainframe is financials. But only recently have the vendors begun producing true client/server offerings. We'll look at how users like them and what more they need. **Buyers' Satisfaction Scorecard:** Market leading client/server financial software **Firing Line:** Latest client/server financial software from a leading vendor	Starch Study
Sept.	Aug.	Aug.	**Special Report:** Annual Salary Survey	
Sept.	Aug.	Sept.	**CW Guide To: Internetworking Routers and Hubs** Facing competition from many areas, routers and hub vendors are adding capabilities and repositioning themselves. How do these changes affect IS buying plans and what is the future internetworking product set? **Buyers' Satisfaction Scorecard:** Market leading hubs and routers **Firing Line:** Latest hub or router from a leading vendor **Custom Publication:** Object Application Awards Supplement	**Networks Expo** Dallas 9/12 - 9/14 Starch Study
Sept.	Sept.	Sept.	**Closer Look:** Client/Server Manufacturing Software	
Sept.	Sept.	Sept.	**CW Guide To: ATM Switches** ATM is becoming more widely installed and product offerings are multiplying. What are the benefits and caveats of this new high-performance technology? **Buyers' Satisfaction Scorecard:** Market leading ATM switches **Firing Line:** Latest ATM software from a leading vendor **Custom Publication:** White Paper on The Business Case for Client/Server (part 3 of 4-part Enterprise Software Directions Series)	**Interop + Networld** Atlanta 9/25 - 9/29 **Unix Expo,** New York City 9/26 - 9/28

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Computerworld Editorial Calendar

October - December 1995

Issue Dates	Ad Closings Color*	Ad Closings B&W	Editorial Features & Custom Publications	Show Distribution & Ad Readership Study Issues
Oct.	Aug. 4		**Computerworld Client/Server Journal** **Vertical Market Focus:** Transportation **Section Feature:** Product Focus on Database Tools	Software Developers' Conference SIM Fall Conference Harvey Study
Oct. 9	Sept. 1	Sept. 8	**Closer Look:** Lotus **Custom Publication:** White Paper on Manufacturing Technology: Managing for Change (part 3 of 4-part Manufacturing Series)	**Software Developers Conference** Washington, D.C. 10/3 - 10/7
Oct. 9	Sept. 1	Sept. 8	**CW Guide To: Large Scale Servers** Mainframes, massively parallel multi-processors and supercomputers have their place in large corporations where data and applications require enormous processing power. How do the leading products shape up in this category and how much flexibility do they offer IS? **Buyers' Satisfaction Scorecard:** Market leading large scale systems **Firing Line:** Latest large scale system from a leading vendor	
Oct. 16	Sept. 29	Oct. 6	**Closer Look:** ISDN Update/Frame Relay	Starch Study
Oct. 23	Oct. 6	Oct. 13	**CW Guide To: Network Operating Systems** As operating systems take on more management capabilities, the buying decision changes. IS managers must look at the benefits of increased functionality and the trials of implementing it. What are the NOS trade-offs? **Buyers' Satisfaction Scorecard:** Market leading LAN operating systems **Firing Line:** Latest LAN operating system from a leading vendor	**SIM Fall Conference** Orlando, FL 10/22 - 10/25
Oct. 30	Oct. 13	Oct. 20	**Closer Look:** PC Storage **Special Issue:** Campus Edition (mails 10/31)	
Nov.	Sept. 27		**Computerworld Client/Server Journal** **Vertical Market Focus:** Brokerage **Section Feature:** Product Focus on Development Tools	Comdex Fall Mobile World Client/Server World DB Expo Harvey Study
Nov. 6	Oct. 20	Oct. 27	**CW Guide To: Object-oriented DBMS and Development Tools** Is object-oriented the next wave in DBMS or is it an embedded technology that will gradually simply add functionality to present offerings? This question and how it affects IS buying decisions will be examined. **Buyers' Satisfaction Scorecard:** Market leading object-oriented DBMS **Firing Line:** Latest object-oriented DBMS from a leading vendor	Starch Study
Nov. 13	Oct. 27	Nov. 3	**CW Guide To: Desktop PCs** Pentium, PowerPC and other platforms will be examined with regard to the migration issues and performance gains they provide. **Buyers' Satisfaction Scorecard:** Market leading desktop PCs **Firing Line:** Latest desktop PC from a leading vendor	**Comdex Fall** Las Vegas 11/13 - 11/17
Nov. 20	Nov. 3	Nov. 10	**Special Report:** Electronic Commerce	
Nov. 27	Nov. 10	Nov. 17	**Closer Look:** Internet Browsers	**Mobile World** Boston 11/28 - 11/30
Dec. 4	Nov. 17	Nov. 22*	**Closer Look:** Visual Development Tools **Custom Publication:** White Paper on Service Solutions for Client/Server (part 4 of 4-part Enterprise Software Directions Series)	**Client/Server World** Chicago 12/5 - 12/7 **DB Expo** New York City 12/5 - 12/7 Starch Study
Dec. 11	Nov. 22*	Dec. 1	**CW Guide To: Messaging Software and E-mail** With e-mail going through a major architectural change to client/server, the market will have a very different shape. IS should be able to purchase products that better address company needs. **Buyers' Satisfaction Scorecard:** Market leading e-mail software **Firing Line:** Latest e-mail package from a leading vendor **Custom Publication:** White Paper on Manufacturing Acquisition Strategies: A Guide for User Empowerment (part 4 of 4-part Manufacturing Series)	
Dec. 18	Dec. 1	Dec. 8	**Closer Look:** Contact Management Tools	
Dec. Jan.	Dec. 8	Dec. 15	**Annual Forecast Issue** (1996 issue)	

* Includes ads within special editorial features and premium positions. * Please note early advertising close.

IS at O.J. City

CONTINUED FROM PAGE 91

In where Ito's four law clerks run Folio Corp.'s Lawdesk and other CD-ROMs. The clerks also can access a seven-disk server via LA Net, a countywide T1 network.

Back in the courtroom, Ito nods toward a 67-in. video monitor hanging high on a wall beside his bench that faces the jurors, lawyers and audience. "That's an ultrahigh resolution system," he says.

Like IBM, Trial Presentation Technologies recognized the awesome value of showcasing equipment at the Simpson trial. The Los Angeles consultancy donated its multimedia display system to present the 10,000 pieces of documents, photos, charts, graphs, video and other evidence in the trial [CW, Jan. 9].

The enticing economic motivation was summed up by one court insider: "When all the other judges see [the evidence presentation system], they'll want it. That's 300 or so L.A. judges at $200,000 a courtroom. That's a hell of a lot of money."

Initially, the multimedia system caused a stir, Nichols says. What Trial Presentation Technologies described as "an overzealous employee" changed the color of a large Sony logo on several 15-in. monitors from white to black so they would show up better on TV. The original color was quickly restored. "We've been very strict about advertising," Hannawi notes. "The camera cannot zoom in on a computer."

Food for thought

On this recent Friday, the long tables that normally bear the transcript and evidence monitors as well as personal laptops used by the defense and prosecution are stacked with cold cuts, salads and soft drinks for the judges' monthly lunch. Beneath the tables, duct-taped wires and cables form thick black arteries along the courtroom floor.

"Come on," Ito urges. "We don't want all this food to go to waste." After several urgings, Hannawi and Nichols fill plates, before continuing the tour.

Although the grisly Simpson case has mesmerized tabloids, TV and gossip for nearly a year, it's hardly an obsession for busy IS pros at the court. "Anybody knows more about the trial than I do," says Peter Castagna, a senior programmer/analyst. His peers express similar sentiments.

Back in Hannawi's modest office in Room M-6, he and Nichols say there's another big reason they can't devote that much attention to the Simpson trial: They're too busy.

Los Angeles County has more than 300 courtrooms in more than 40 locations. Two field technicians support the entire county. Nichols' three-person end-user support unit serves 1,800 users. "You're supposed to have one support person per 60 users," he says. "We have one for 600." There is a hiring freeze in place, but Nichols says he hopes a new program called "Angels," which makes use of end-user helpers, will ease the burden.

Hannawi's lot is similar. His six-person group serves every Superior Court judge and their clerks. They provide systems for tracking courtrooms, evidence, files and calendar dates in addition to troubleshooting, systems development and architecture planning.

Hannawi also manages local connections to LA Net, which serves the county's district attorney, public defender, sheriff and superior court marshalls.

A 17-year IS veteran and former data processing department chairman at nearby Webster College, Hannawi says, "The way we support Ito's court is not much different from [the way we support] any other. He looks to us like any other user."

Heavy workload

What's more, a long list of new projects also demands attention: That list includes moving the jury selection system to a Hewlett-Packard Co. HP 9000 running Unix. The IS group is also installing the following:

- An interactive voice response system.
- A case management system for civil and probate courts.
- A criminal system for Long Beach, Compton, Pomona and elsewhere.
- A cashiering and revenue system.
- Countywide E-mail.
- A client/server-based juvenile court system.

"We're cut to the bone," Nichols says. He's just finished installing the first 25 of 185 new Pentium systems that will replace outdated Compaq 286-based machines used by the court clerks. "One was already stolen right out of the courtroom," he says with disbelief.

It's a good thing

Fortunately, outside vendors service the computerized court reporting and evidence systems.

Even so, the Simpson trial demands attention. Central court systems run 24 hours a day. "You just expect things to work," Judge Ito says. "And they do." The only glitch so far has been a brief power outage caused by a faulty cable. While both men manage to work a nine-hour day, the trial "is always in the back of your mind," Nichols says.

Even if they had time to gawk, Nichols and Hannawi say it would take a lot to turn their heads.

"We see celebrities all the time," Nichols says, such as actress Kim Bassinger and billionaire businessman Kirk Kekorian.

Over in the basement of the Hall of Records building, Nichols, ever-cheery, turns back to his frequently ringing phone. Ribbon candy and a can of Dole pineapples adorn his bookshelf. "Hi, this is Bob. Can I help you?"

Excitedly, a young programmer bursts into his cubicle and announces, "I just saw a new screen saver. It's got helicopters circling police cars, which are chasing a white Bronco..."

O.J. mania may make sense to few in the information services bureau, but they neither fight nor invite it. Ironically, the people closest to the Simpson trial may have the best perspective on it of all. ■

Maglitta is Computerworld's senior editor, corporate strategies.

"THERE ARE NO GAMES ON [MY PC] — CONTRARY TO WHAT [JAY] LENO SAYS. I DON'T PLAY GAMES. THERE'S A LOT GOING ON UP HERE."

—Judge Lance Ito, presiding judge in the O. J. Simpson double-murder case.

OUT OF SIGHT, NOT OUT OF TOUCH

O.J. lawyer Alan Dershowitz objects, assists, advises via remote system

All of the technology action in the O.J. Simpson case isn't in the courtroom.

Defense attorney Alan Dershowitz has pioneered what might be termed "telelaw." Each day, Dershowitz participates electronically in the O.J. Simpson double-murder trial in Los Angeles from his office or home in Massachusetts.

Using a Sharp Electronics Corp. Zaurus ZR-5000 personal digital assistant with an enhanced keyboard, Dershowitz or an assistant sends handwritten or typed notes and faxes containing legal advice, objections, points of appeal and memorandum of law to members of Simpson's defense team. His messages are received on a courtroom fax machine located next to the clerk.

He watches the proceedings live on CNN and Court TV. The Lexis/Nexis database and hundreds of law books are at his fingertips.

"I had to do this because I couldn't come to L.A.," Dershowitz explains, citing his teaching commitment at Harvard Law School as well as the other cases he's handling.

So he flew to California, made a motion to Judge Lance Ito and received approval to telecommute.

The tactic has proved effective on several occasions. For example, many of Dershowitz's points helped steer defense attorney F. Lee Bailey's blistering cross-examination of L.A. detective Mark Fuhrman.

— Joseph Maglitta

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SOFT·WARES

Many companies are pushing for general, more business-oriented skills, but some experts say its a guise to trim rather than train outmoded staff.

By Bronwyn Fryer

What if the *Stars and Stripes* sailing team spent all its time untangling the rigging, cleaning the winches and admiring their boat rather than preparing, communicating and working on a strategy for the America's Cup? They wouldn't stand a chance, right?

The same is true in information systems departments where business analysis, conflict resolution, project management and other nontechnical aptitudes often take a backseat to technical skills.

But as additional importance is placed on softer, more business-oriented skills, what will happen to staff members who aren't particularly strong in these areas? It depends on the shop, analysts say, but in many cases, their future doesn't look good.

"Instead of working with existing staff, [some companies] try to hire new, fresh people with up-to-date skills, thinking the new people will bring soft skills," says Joe Tumminaro, vice president of technology at J. Frank Consulting, a client/server consulting firm in Palo Alto, Calif. "But unless they've taken a lot of business courses, the new people coming out of computer departments aren't any more equipped to understand the business than the older ones."

The trend of cutting staff for this reason is not going unnoticed. Approximately 80% of 600 IS professionals surveyed by Peneom International, Inc., say their companies are laying off staffers in favor of smaller teams of people who demonstrate they can "talk as well as code," says Ed Saudi, the recruitment firm's executive vice president.

Most IS managers know they could face a wrongful termination lawsuit if they discriminate. But Rouja Brzozowski, a New York consultant who conducts IS skills inventories, says she knows of managers who would like to clean house.

"One client of mine told me that if he could, he'd fire everyone and start all over again with people who had good communications skills," Brzozowski says.

Some observers say there's a disconnect between what IS managers see and what actually exists. In fact, they say the problem has more to do with management's tendency to typecast employees than with actual abilities. "Specialization has boxed programmers in for so long that when it comes time to learn something new, most IS managers think it's difficult for them to do so," Tumminaro says.

Nevertheless, the very nature of the

Soft wares, ***page 97***

Wilderness training

Can four matches, a coat, a blanket, 20 feet of rope, a gallon of water and three candy bars help sharpen your soft skills? They can if you're in Kevin Reilly's department.

When Reilly, vice president of IS at Richardson Electronics Ltd. in LaFox, Ill., wants his staff of 21 technical professionals to improve their communication skills, he puts them through a plane crash.

Three times a year, Reilly takes his department on a retreat where the group is divided into five-person teams and offered a scenario like this: It's mid-January. Your plane has just crashed in the mountains, 90 miles from the closest help. You have four matches, a coat, a blanket, 20 feet of rope, a gallon of water and three candy bars. Rank the items in order of importance and then figure out how to survive.

The exercise, conducted by professional teamwork-building educators, is designed to help Reilly's staff learn to "think outside the box," Reilly says. "It helps us break the mode of thinking that puts one person in control. It lets people see that by discussing a situation, they can come up with a better way of doing things," he says.

> It lets people see that by discussing a situation they can come up with a better way of doing things
>
> Kevin Reilly
> Richardson Electronics

In addition to retreats, Reilly also holds twice-monthly meetings to help staffers improve soft skills. During the meetings, the staff conducts a postmortem on a problem such as a network failure and comes up with various solutions for the future. "It's imperative that those folks see at least one other way of solving the problem," Reilly says.

—Bronwyn Fryer

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Soft wares

CONTINUED FROM PAGE 96

tools, such as object-oriented technology, forces IS staffs to understand the details of just about every business aspect. "I spend an awful lot of my time writing memos and proposals or methodologies for the use of business rules," says Dan De Salvo, president of Chesapeake Vector, a technology consulting firm in Fairfax, Va. "More and more people in the IS departments I work with are doing the same. To do that, they have to have a strong foundation in communications."

While companies are more adamant that staffers have so-called soft skills, few succeed in providing the training necessary to gain or improve these skills.

Richard Buchanan, an analyst in the computing strategies service at Forrester Research, Inc., has studied this issue and makes a strong distinction between retraining and re-education.

"A lot of companies have tried to retrain employees in tactical, technical skills without considering the need for re-education," he says. "Re-education demands a broader agenda, is more far-reaching and expensive but offers a bigger payback."

According to Buchanan, a handful of forward-looking companies invest in re-education, which often means sending IS professionals to business school. But the idea is daunting to most managers, who are more likely to opt for a changing of the guard in hopes of acquiring people with "generalist" attributes.

> Instead of working with existing staff, [some companies] try to hire new, fresh people with up-to-date skills, thinking the new people will bring soft skills. But unless they've taken a lot of business courses, the new people coming out of computer departments aren't any more equipped to understand the business than the older ones.
>
> Joe Tummonaro, vice president of technology, J. Frank Consulting

Many observers are quick to point out that in most cases, it's hardly the IS staffer's fault. Prior to the client/server trend, companies were content to keep IS staff in their glasshouses. Middle managers usually did all the communicating, while programmers spent days, weeks or months without ever working directly with users.

In the fast-changing world of client/server, however, developers are expected to work hand-in-glove with users. Meanwhile, the larger a company becomes, the more likely it is that managers will typecast personnel into distinct specialist categories and overlook general skills.

"As long as we have separate hiring strategies that typecast people, the culture maintains the division between the generalist and the specialist," argues Jon Bluat, president of InfoEd, an IS consulting and educational services firm in Needham, Mass.

Moreover, despite the stated need for strong communication skills, most IS departments continue to place little overt premium on them. "If you compare a good technical writer's salary to the salary of someone who can push SQL around, the technical writer receives around 20% less," De Salvo says. "That compensation clearly reflects the value currently placed on communication skills." ■

Fryer is a freelance writer in Boulder Creek, Calif.

Show by example

Improving your IS department's communications skills takes concerted effort that can be enhanced with specific measures. Consider the following:

▪ Publicize and reward cross-functional teams that use technology to improve customer satisfaction and the company's position vis-a-vis the competition.

▪ Build tighter links between IS and business people. "IS needs a grasp of the competitive landscape and customer issues the company is facing. Nontechies need an understanding of what is possible with the technology," says Robert Cameron, Forrester Research's director of software strategies services.

▪ Conduct a formal evaluation of internal skill sets. To understand the mix of skills in your department, conduct a study that takes into account soft and technical skills. "Before you can retrain people in soft skills, you must observe what combination of skills they already have, weigh them and track them," says Daniel Coursey, president of Professional Development Group, Inc., a training firm in Framingham, Mass.

▪ Re-educate, don't just retrain. To re-educate employees, some companies send staff back to college for graduate courses or to business school. Richard Buchanan at Forrester Research says a few companies have even taken the opposite approach — taking skilled business personnel and teaching them the technical skills that they need in an IS environment.

▪ Rank soft skills high, and foster and reward them. If an employee is an exceptionally good communicator, project manager or business analyst, reward them accordingly. "If you want your staff to become better conflict managers, you have to tell them so, then coach them in conflict resolution, provide them with articles, put it in their performance reviews and provide incentives," says Rouja Brzozowski, a consultant in New York.

INFORMATION TECHNOLOGY

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- C++, Web server interface

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PCs/workstations	53,379
Software Vendor	**100,012**
large-scale systems	44,865
mid-range systems	82,722
PCs/workstations	61,517
Non-CPU Computer products manufacturer	**24,401**
VAR/Dealer/Retailer	**22,685**
DP service bureau/contract DP services	42,231
Consulting/Planning	75,019
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Insurance	**69,501**
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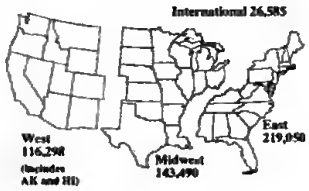

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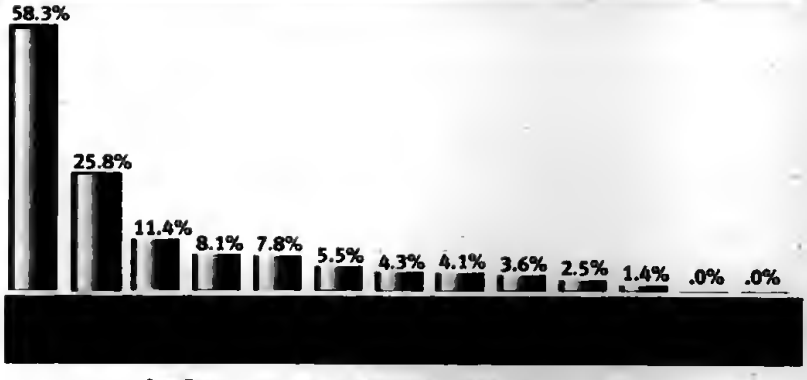

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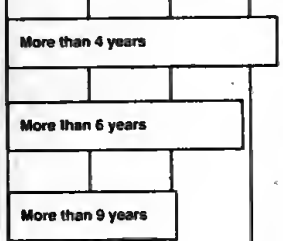

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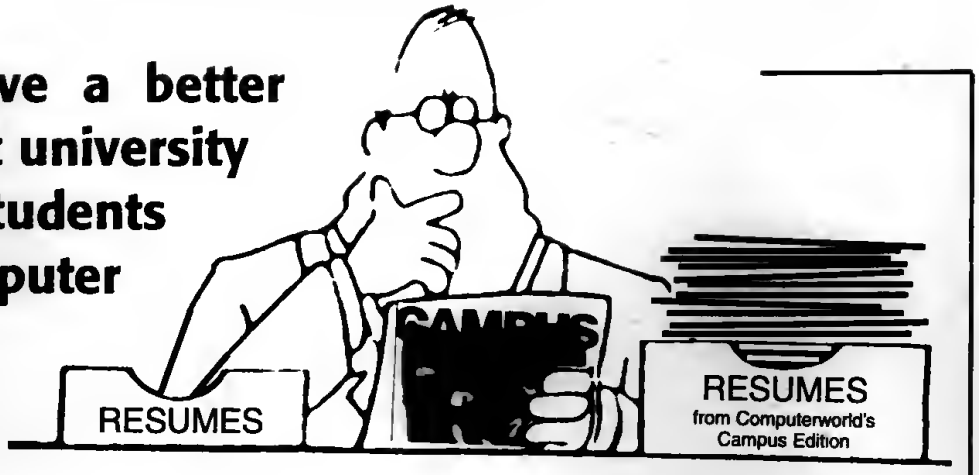

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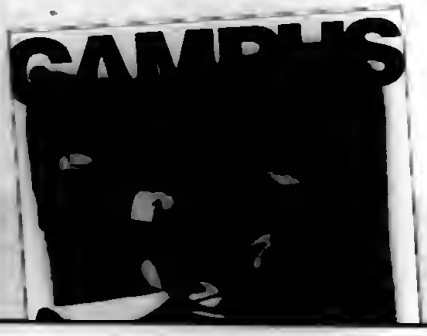

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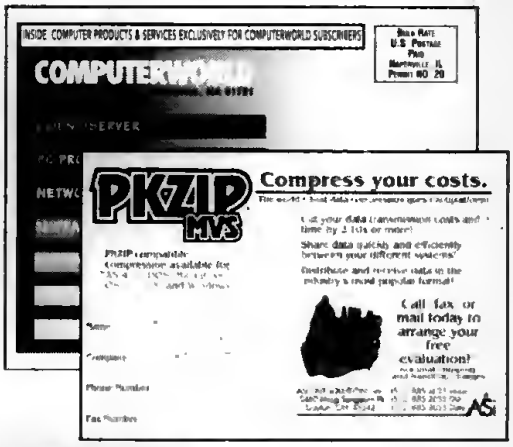

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Mission Impossible

User expectations are tough to manage, whether they're sky-high or at an all-time low

By Leslie Goff

"Jim, we have an insurrection on our hands. Users are demanding new applications all over the map, and when they get what they want, it's not fast enough, not easy enough, requires too many changes. Your mission, should you decide to accept it, is to get these people to be reasonable. You're on your own with this one, buddy. This tape will self-destruct in five seconds. . . ."

Sound familiar? Whether you must sell your vision to a line of business or rein in the enthusiasm of a department hell-bent on having the latest software, information systems departments seldom have users exactly where they want them — a feeling Dian Garnett at the nonprofit organization Dallas Helps knows only too well.

While planning a distributed network supporting Lotus Development Corp.'s Notes applications, the MIS director faced pendulum swings in user reaction. First they didn't want the system; then they wanted too much. This was her plan of attack:

MISSION: To efficiently and immediately share information across 27 agencies and medical facilities that offer drug rehabilitation treatment and services to inner-city Dallas residents.

"The most immediate need was to expedite treatment to clients by having a central resource to determine bed availability in each treatment center. Before they had Notes, a case worker might have to call all over town looking for a place that could take a new patient," Garnett says.

SOLUTION: Install a PC network supporting 27 sites with distributed Notes databases. This would track bed availability, consolidate patient records, capture demographic patient information and streamline the process that a patient must go through to receive public assistance for treatment and rehabilitation.

He would also automate the generation of reports and documentation required by state funding agencies and other supporting organizations.

USER DOSSIER: Social workers, medical personnel, administrators, fund raisers, housing placement specialists and other employees of community organizations, agencies and treatment centers. When the project began, none of the 27 sites had any installed computer base.

USER INSURRECTION: While the system would allow the nonprofit organization to coordinate functions and information between drug rehabilitation agencies, users balked at the actual implementation.

"I didn't realize this was going to be a very hard sell; they didn't trust people coming in and putting in a computer system. They were afraid the information in the databases would be used against them, nervous about who would see the information, especially among their funding agencies," Garnett says.

IS' COUNTERMARKETING TECHNIQUES: Prototyping, hands-on training and education, on-site visits and plenty of hand-holding. "We took a wait-and-see approach. I developed a personal relationship with each agency and worked with them individually to make sure the design was based on their needs, not ours. Then we developed prototypes that targeted some of the larger problems — like bed availability. By the time we started training classes, a couple of months before the rollout, they were thrilled with the Notes interface and how easy it was to learn and use. I trained 115 people myself. I kept them up-to-date on our progress and followed up personally at each site after implementation," she says.

UNFORSEEN BUMPS When users saw the initial prototypes, they flooded Garnett with requests for individual databases that would track, for example, internal job opportunities at each organization. She had to stay on track with systemwide application priorities without dampening the enthusiasm.

"Their expectations got bigger and bigger. Once they saw the capabilities and forms, they went nuts with what they wanted in Notes. We had to keep them focused on the basics: billing, bed availability and other more immediate applications needs. Around the same time, we had to shift our efforts to address new state-mandated [electronic data interchange] requirements. With one month's notification, we wrote a program that would edit and download all the required information into the right forms," Garnett says.

SECRET WEAPON: Garnett had an ally. Lois Olson, Dallas Helps' executive director, evangelized on behalf of the network. "She essentially did all the groundwork and stayed with me all the way. From 1989 to '91 she got all the agencies together to recognize each other and to suggest the notion of having an IS [function]. Then the board of directors got [Electronic Data Systems Corp.] involved, and I came on board with her support," Garnett says.

MISSION ACCOMPLISHED: Today, Garnett's mission is complete. Notes is used to generate all documentation and reporting required by state funding organizations, and users program their own Notes databases. Among the keys to her winning approach, Garnett counts personal involvement and successful application prototypes. ■

Goff is a freelance writer in New York.

WINDOWS 95 HYSTERIA

Information systems managers' next challenge will be restraining user demand for Microsoft Corp.'s upcoming Windows 95. Many departments and lines of business may be ready to upgrade at debut, whether IS intends to go that path or not, says Matt Cain, program director for the Workgroup Computing Strategies Program at Meta Group, Inc. in Stamford, Conn.

"Users see Windows 95 as something of a panacea, and as we know, this isn't expected to be the cleanest release. IS could well end up supporting an unstable product that lacks applications support and working out the bugs themselves," Cain says.

To keep the peace, Cain suggests that IS cut a deal with departments that want to forge ahead. "Let them know you intend to migrate them as quickly as you feel is appropriate, and as long as you seem to be keeping that promise, you can redirect some of that end-user community desire," he says.

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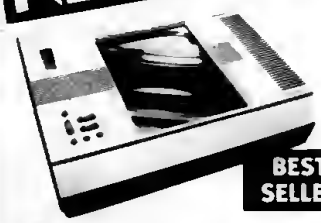

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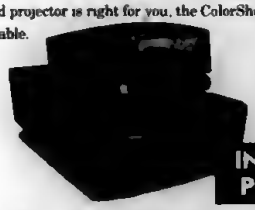

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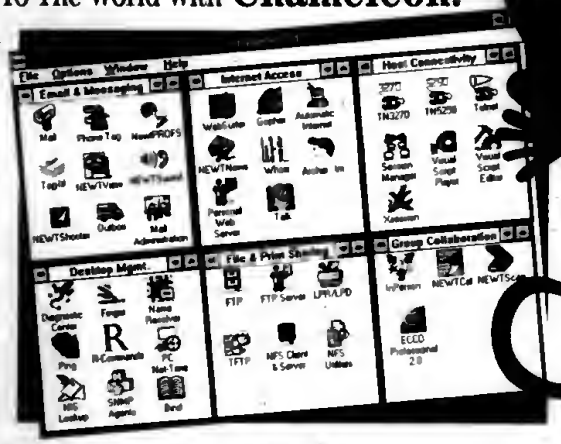

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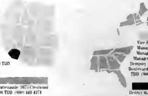

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Gainers Losers

Percent

Gainers		Losers	
Intelligent Electronics	28.4	Creative Technologies Inc.(L)	-26.8
Network Computing Devices(H)	20.7	Encore Computer Corp	-14.3
Racotek Inc.	15.1	Sapiens Intl. Corp N.V.	-14.2
Quarterdeck Corp.(H)	14.7	Cambex Corp	-9.8
Intergraph Corp	14.6	4th Dimension	-9.4
Interleaf Inc.	13.9	FORE Systems Inc.	-9.2
Comshare Inc.	13.8	Convex Computer	-8.8
EMC Corp	13.4	Intelligent Info. Systems	-8.5

Dollar

Gainers		Losers	
Texas Instruments(H)	8.75	Xerox Corp.	-4.13
3 COM Corp	6.38	Hyperion Software Corp.	-2.88
BMC Software Inc.	4.75	FORE Systems Inc.	2.75
Adobe(H)	3.88	Creative Technologies Inc.(L)	-2.66
Lotus Development	3.69	Network General	2.00
ITT Corp.(H)	3.63	Sungard Data Systems	-1.88
SynOptics(H)	-3.50	Paychex	-1.38
Reynolds and Reynolds(H)	3.38	Novell Inc.(H)	-1.25

Hot chips to go

The worldwide semiconductor industry is on a roll, boosting the stock of several U.S. speciality chip makers and related companies.

The Semiconductor Industry Association last week announced that its key barometer — the book-to-bill ratio — hit its highest level since November 1992. The ratio of 1.18 means new bookings are coming in faster than filled orders are going out. The association reported that April orders for chips totaled $4.4 billion, up 2 3% from March.

Companies such as **Lattice Semiconductor Corp. (LSCC)** in Hillsboro, Ore., **Sierra Semiconductor Corp. (SERA)** in San Jose, Calif., and **PRI Automation, Inc. (PRIA)** in Billerica, Mass., have been riding the wave.

Lattice stock has risen from a 52-week low of $14.75 a share to $29.25. The company makes programmable logic devices, which help companies reduce development costs by incorporating different logic functions on a single device.

Sierra has soared from a 52-week low of $6.75 a share to more than $28 a share. Kenneth A. Peterson, a researcher at "Red Chip Review" in Portland, Ore., said investors see potential in Sierra's sale of communications chips for the emerging Asynchronous Transfer Mode marketplace.

Similarly, PRI Automation saw its stock move from $13.25 to $25. The company supplies factory automation systems in the semiconductor industry.

Peterson said most niche semiconductor companies are on the upswing as they come out with new generations of highly specialized products. He said he expects the performance of these companies to "improve significantly" during the rest of this year. — *Neal Weinberg*

Chip makers charge

	Income per share	Stock price	52-week range
Sierra Semiconductor Corp.			
Q1 1994	$.17	28⅛	6¾ to 29¼
Q1 1995	$.30		
Lattice Semiconductor Corp.			
Q1 1994	$.30	29¼	14¾ to 31½
Q1 1995	$.40		
PRI Automation, Inc.			
Q1 1994	$.19	25	13¼ to 27¼
Q1 1995	$.27		

Figures based on calendar year.

May 12 Stock Ticker

Exch	52 Week Range		May 12 Wk Ago Close	Wk Pct Change	Wk Chg
Communications and Network Services					UP 2.28%
OTC	6.13	20.13	11.00	0.38	11.2
NYS	46.88	57.63	AMERITECH Corp	45.25	0.38 -0.8
NYS	57.13	69.25	AT&T	51.63	0.50 1.0
OTC	18.75	37.75	Banyan Systems Inc.	15.88	0.10 1.3
OTC	39.13	38.63	Bay Networks Inc.	36.75	0.94 2.7
NYS	58.38	68.88	Bell Atlantic Corp	56.50	0.75 1.3
NYS	61.50	50.50	Bell South Corp	62.75	0.63 1.0
NYS	27.25	30.00	Bolt, Beranek & Newman	27.25	0.63 2.4
OTC	19.75	9.00	Brooktrout Technology	15.63	-0.25 -1.6
NYS	57.88	73.06	Cabletron Systems	49.38	2.33 4.5
OTC	25.75	30.00	Centigram Communications	26.75	0.25 1.7
OTC	50.50	71.00	Cincinnati Bell Corp	52.25	0.25 2.3
OTC	45.00	18.75	Cisco Systems Inc	45.00	3.13 7.5
OTC	13.81	6.13	Compression Labs Inc	8.75	0.00 0.0
OTC	30.13	5.13	Computer Network Tech. (H)	30.13	0.38 3.8
OTC	34.50	7.50	CrossCom	17.00	0.50 4.3
OTC	4.31	2.31	Data Switch Corp. (H)	4.25	0.50 14.1
OTC	40.25	17.88	DSC Communications (H)	40.25	2.00 5.2
OTC	61.75	10.00	FORE Systems Inc	27.75	2.75 9.2
NYS	35.88	9.25	General Datacomm Inds.	10.75	-0.50 -4.7
NYS	34.88	29.50	GTE Corp	31.75	0.25 0.7
NYS	111.50	77.00	ITT Corp. (H)	111.38	3.63 3.4
OTC	25.88	17.25	MCI Communications Corp	20.88	-0.75 -3.5
OTC	15.75	5.88	MILITEL Communications Corp	6.75	0.01 0.5
OTC	12.63	5.19	Microtcom Inc	10.13	0.38 3.8
OTC	10.50	4.00	Netlink Corp	6.63	0.31 1.9
OTC	8.50	3.75	Network Computing Devices (H)	8.38	1.44 20.7
NYS	27.88	7.88	Network Equipment Tech.	22.38	1.00 4.7
OTC	30.63	14.00	Newbridge General	21.13	2.00 8.8
NYS	47.75	26.50	Newbridge Networks Corp.	32.38	2.11 7.0
NYS	41.00	27.63	Northern Telecom Ltd.	35.88	0.38 1.1
OTC	37.63	33.38	Novell Inc. (H)	20.88	1.25 5.6
NYS	43.13	35.38	Nynex Corp. (H)	42.00	0.75 0.6
OTC	24.75	15.75	Octel Communications Corp	22.38	1.00 4.7
OTC	24.00	6.00	Oancal Data Systems Inc. (H)	22.38	0.69 3.2
OTC	6.00	2.11	Penril Data Comm Networks	4.11	0.06 1.9
OTC	50.13	11.75	Pictureltel Corp	46.38	0.75 1.6
OTC	8.13	2.13	Proxim Inc	6.38	0.25 4.3
OTC	3.13	2.25	Racotek Inc.	3.25	0.69 15.1
OTC	2.50	1.50	Rite	1.88	0.75 6.1
NYS	24.88	16.75	Scientific Atlanta Inc.	21.63	1.17 4.9
NYS	46.25	39.25	Southwestern Bell Corp. (H)	45.25	0.13 0.3
NYS	40.13	25.88	Sprint Corp	33.13	0.13 0.4
OTC	31.63	13.38	Standard Microsystems Corp	20.50	1.88 10.1
OTC	47.00	9.88	Stratacom Inc	37.13	2.11 6.1
OTC	9.88	3.98	Telecrit Corp	6.50	0.50 8.3
OTC	81.25	24.00	US Robotics	79.50	2.00 2.6
NYS	43.38	34.63	US West Inc	41.75	0.38 0.9
OTC	21.50	10.25	Xircom	13.75	0.50 4.6
OTC	29.00	8.00	Xylogics Inc.	22.00	3.75 20.6
PCs and Workstations					UP 2.17%
OTC	5.63	1.50	Advanced Logic Research	5.13	0.11 2.1
OTC	68.00	24.63	Apple Computer Inc.	46.63	2.94 7.4
OTC	19.25	10.38	AST Research Inc.	17.44	0.06 -0.4
NYS	44.38	29.50	Compaq Computer Corp	38.63	1.75 4.1
OTC	56.13	21.38	Dell Computer Corp. (H)	56.13	1.00 1.8
OTC	25.25	9.25	Gateway 2000 Inc	18.00	0.13 0.7
NYS	66.38	35.94	Hewlett Packard Co. (H)	66.25	1.75 2.6
NYS	39.00	18.75	Silicon Graphics	38.50	1.00 2.7
OTC	41.75	18.75	Sun Microsystems Inc. (H)	41.69	2.19 5.3
NYS	52.38	33.38	Tandy Corp	48.88	1.00 2.1
OTC	11.75	11.25	Zeos International Ltd	11.25	0.00 0.0
Large Systems					OFF 0.88%
ASE	13.13	5.25	Amdahl Corp	12.88	0.38 3.0
NYS	9.88	3.88	Convex Computer	3.88	0.34 8.8
OTC	0.72	0.34	Cray Computer	0.19	0.00 0.0
NYS	24.38	14.63	Cray Research Inc	19.38	0.11 0.6
NYS	12.00	8.75	Data General Corp	7.25	0.00 0.0
NYS	46.75	18.38	Digital Equipment Corp	45.13	1.75 2.8
OTC	5.56	1.72	Encore Computer Corp	1.25	0.38 14.9
OTC	18.50	8.50	Harris Computer Systems Corp	15.25	1.50 10.5
NYS	96.50	54.50	IBM	95.00	1.88 2.0
OTC	7.88	3.63	Meridian Data Inc.	4.00	0.75 5.9
OTC	12.75	6.25	NetFrame	5.00	0.75 5.3
OTC	21.25	11.75	Sequent Computer Sys	15.00	0.50 3.1
OTC	5.00	3.13	Sequoia Systems Inc	3.63	0.13 3.3
NYS	39.88	25.75	Stratus Computer Inc	30.63	-0.13 -0.4
NYS	19.25	10.75	Tandem Computers Inc	13.88	0.13 0.9
OTC	14.13	3.88	TeraCom Systems	4.31	-0.00 -1.5
NYS	17.13	8.75	Unisys Corp	11.00	0.13 1.1
Software					UP 1.10%
OTC	58.75	34.00	Adobe Systems Inc.	55.63	1.38 2.5
OTC	5.88	2.50	American Software Inc	3.88	0.00 0.0
OTC	44.00	23.25	Autodesk Inc.	36.75	1.75 5.0
OTC	6.63	3.75	Bachman Info. Systems	5.75	-0.11 2.1
OTC	38.25	31.75	BGS Systems Inc	28.50	-0.88 3.0
OTC	69.75	40.25	BMC Software Inc.	63.75	4.75 8.1
OTC	30.75	16.50	Borland Intl. (H)	30.13	1.61 5.7
OTC	14.38	6.00	Borland Int'l. Inc	8.00	1.00 11.3
OTC	22.75	5.75	Brock Control Systems Inc	8.13	0.50 6.6
NYS	3.75	1.78	CE Software	2.84	0.22 7.1
ASE	21.50	6.25	Cheyenne Software Inc.	14.00	0.38 2.8
OTC	25.50	9.75	Cognos Inc	24.38	-0.11 -0.5
NYS	71.25	29.00	Computer Associates	70.13	2.25 3.3
OTC	4.50	2.50	Computer Vision Corp	3.25	0.13 4.1
OTC	49.75	21.88	Compuware Corp	35.88	0.25 -0.4
OTC	18.75	9.00	Consilium Inc	18.50	2.25 13.8
OTC	16.75	10.13	Corel Corp	15.13	0.11 2.3
OTC	16.25	7.25	Dataware Technologies Inc.	14.75	0.25 1.7
OTC	5.13	3.00	Easel Corp	2.88	0.13 4.5
OTC	36.25	14.25	Fresh Corp	33.75	-0.25 0.8
OTC	8.25	3.00	4th Dimension	3.63	-0.38 9.4
OTC	22.25	8.50	Frame Technology	21.25	1.88 9.4
OTC	35.50	11.50	FTP Software Inc.	26.38	2.25 9.5
OTC	10.25	7.00	Group1 Software	9.88	0.00 0.0
OTC	17.25	6.75	Gupta	10.00	0.22 2.2
OTC	10.75	4.63	Logan Systems Inc.	8.25	0.13 1.5
OTC	49.75	21.13	Hyperion Software Corp	15.00	2.88 7.6
OTC	17.75	11.25	Information Resources	13.38	0.38 2.9
OTC	44.44	16.75	Informix Corp (H)	44.44	1.56 3.6
OTC	14.38	7.38	Intergraph Corp	12.44	1.56 14.4
OTC	7.00	3.50	Interleaf Inc	5.03	0.69 11.9
OTC	18.75	8.63	Intersolv Inc	16.38	-0.56 3.3
OTC	86.25	29.75	Intuit Inc	74.13	2.38 3.3
OTC	37.25	29.00	Legent Corp	30.25	2.25 8.0
OTC	80.00	34.00	Lotus Development	65.50	1.00 1.5
OTC	13.75	1.01	Magic Software Enterprises (L)	0.94	0.06 7.6
OTC	16.50	6.00	Management Graphics Inc	12.00	0.63 6.0
OTC	13.50	16.75	Mapinfo Corp (H)	13.75	0.00 0.0
OTC	4.75	1.00	Marksoft	2.00	-0.75 -6.0
OTC	10.50	6.75	McAfee Associates	10.00	0.00 1.0
OTC	17.38	9.38	Mentor Graphics	14.75	0.75 5.5
OTC	20.00	13.00	Microtools	11.25	0.25 2.2
OTC	4.00	0.81	Microsoftware	3.13	0.00 0.0
OTC	13.75	6.75	Microvision Corp	10.00	0.75 0.9
OTC	22.50	5.63	Mitem Corp Inc	17.00	0.25 1.4
OTC	8.63	3.50	Mosaic Corp	3.50	1.00 0.0
OTC	49.00	21.50	Parametric Technology	46.50	0.00 2.0
OTC	24.25	9.88	Pacific Systems (H)	12.25	0.00 0.0
OTC	59.50	13.75	Peoplesoft	16.75	0.13 0.7
OTC	8.63	4.88	Phoenix Technologies	8.63	0.88 11.3
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OTC	25.75	12.00	Platinum Technology	18.00	-0.00 2.0
OTC	59.50	17.00	Progress Software Corp	44.00	1.00 2.3
OTC	7.88	1.00	Quadrimark Corp (H)	2.81	1.00 14.7
OTC	18.75	9.50	Random Technologies Inc.	17.63	-0.50 2.8
OTC	5.00	2.00	Realsoftware	4.25	0.06 1.4
OTC	6.31	2.88	Ross Systems	3.25	-0.25 -6.3
OTC	12.00	0.50	Sapiens Intl. Corp. B V	3.38	-0.53 -14.2
OTC	29.13	10.13	Software International Inc.	22.63	-0.81 -3.5
OTC	6.75	2.00	Software Publishing Corp	3.75	0.25 7.1
OTC	17.50	5.00	State of the Art	10.75	-0.13 1.2
NYS	38.38	25.88	Sterling Software Inc.	34.88	-0.31 -0.9
OTC	13.63	3.63	Sterling Dynamics Research	11.00	1.00 0.0
OTC	17.00	10.88	Sybase Inc	21.00	-0.50 2.3
OTC	34.50	8.00	Symantec Corp	23.25	0.00 0.0
OTC	57.00	13.88	SynOptics (H)	37.00	1.30 0.5
OTC	28.88	10.63	System Software Assoc	17.75	1.75 6.7
OTC	7.75	3.25	Tonjor Corp	4.50	0.25 6.1
OTC	24.00	7.88	Vertex Inc Systems	18.00	0.38 2.6
OTC	37.00	10.75	Vision Software Inc.	15.00	0.00 0.0
OTC	10.75	5.50	Walker Interactive Systems	5.75	0.00 0.0
OTC	55.50	17.75	Wall Data Inc. (H)	17.75	0.00 0.0
Semiconductors					UP 0.43%
NYS	37.13	22.25	Advanced Micro Devices (H)	34.63	1.13 3.1
NYS	30.25	16.41	Analog Devices Inc. (H)	18.75	2.25 0.0
OTC	46.13	21.13	Atmel Corp	46.19	0.06 0.1
OTC	10.63	3.63	Chips and Technologies	4.00	0.25 6.5
OTC	51.25	21.00	Cirrus Logic	51.25	3.25 6.8
NYS	13.50	14.13	Cypress Semiconductor Corp (H)	13.00	0.75 5.6
NYS	20.25	11.38	Dallas Semiconductor	19.14	0.11 0.6
OTC	33.25	14.25	Integrated Silicon Solution	17.50	0.75 -4.9
OTC	132.88	90.13	Intel Corp (H)	100.94	0.56 0.1
NYS	70.25	19.63	LSI Logic Corp (H)	26.34	1.06 4.1
OTC	31.50	14.75	Lattice Semiconductor	19.50	-0.75 -3.6
NYS	86.00	28.25	Micron Technology	56.00	2.25 4.1
NYS	64.75	43.25	Motorola Inc	50.38	1.38 2.6
NYS	26.13	14.38	National Semiconductor	21.00	0.38 1.8
OTC	29.38	6.75	Sierra Semiconductor (H)	20.13	1.88 9.7
NYS	118.75	80.88	Texas Instruments (H)	118.75	8.75 8.0
OTC	24.63	10.13	VLSI Technology (H)	23.25	0.50 2.2
OTC	5.88	1.70	Winbond	4.81	0.06 1.1
ASE	19.38	11.50	Western Digital Corp	17.38	0.00 1.0
OTC	86.63	28.00	Xilinx (H)	84.63	3.00 3.7
OTC	48.75	24.75	Zoran Corp	38.75	4.00 [illegible]
Peripherals and Subsystems					UP 0.05%
OTC	11.50	14.18	American Power Conversion	11.00	2.11 [illegible]
OTC	22.25	16.75	Banctec Inc	16.75	0.00 0.0
OTC	8.75	3.38	Cambridge Corp	5.00	0.41 8.4
ASE	4.75	1.38	Conformant's Corp	4.00	0.06 1.6
NYS	18.38	9.00	Conner Peripherals	10.00	0.71 1.1
OTC	24.00	7.25	Creative Technologies Inc. (L)	7.25	1.00 16.0
OTC	10.63	3.50	Data Race Inc.	10.00	0.00 0.0
ASE	7.63	4.13	Datatape Corp	4.00	0.16 1.7
OTC	24.00	12.38	Elec Corp	21.14	2.50 14.0
OTC	22.50	5.00	Emulex Corp	21.75	2.31 10.6
OTC	17.50	11.75	Exabyte Corporation	15.00	0.00 0.0
OTC	24.00	11.75	Iomega	14.50	0.75 5.9
OTC	8.63	1.88	Intelligent Info. Systems	7.00	0.75 9.6
OTC	15.75	1.50	Iomega Corp (H)	14.44	1.44 11.1
OTC	7.25	2.00	IPI Systems Inc	4.50	0.19 4.0
OTC	41.75	17.50	Komag Inc	19.00	1.11 3.9
OTC	6.50	2.63	Maxtor Corp	5.11	0.13 2.5
OTC	11.50	4.00	Microplis Corp	8.44	0.75 12.6
OTC	17.75	9.25	Phoenix Micro Inc	12.50	0.00 0.0
OTC	28.75	5.81	Photronics Inc	17.00	0.50 3.1
OTC	10.75	5.13	QMS Inc (L)	5.75	0.38 6.8
OTC	20.50	11.63	Quantum Corp (H)	20.00	0.75 5.9
OTC	15.00	7.38	Radius Inc	10.38	1.69 16.7
NYS	9.75	6.38	Reconstrum International	8.00	0.00 0.0
OTC	7.00	4.13	Reach Inc	4.50	0.61 3.9
OTC	34.50	19.63	Seagate Technology	34.38	0.75 5.4
NYS	39.13	37.00	Storage Technology	21.25	0.25 1.2
NYS	67.38	27.88	Tandon Inc	46.38	1.25 2.8
NYS	125.88	90.63	Xerox Corp	118.00	4.13 3.4
Services					UP 1.05%
OTC	21.88	14.11	American Mad. Systems	21.38	0.06 1.4
NYS	1.63	0.69	Analogic Inc	0.81	0.06 0.1
OTC	37.50	14.50	Analysts Int'l. (H)	27.50	0.63 2.3
OTC	80.00	49.75	Auto Data Processing	64.63	0.00 0.0
OTC	16.25	14.00	Cambridge Tech. Partners	13.13	0.13 0.4
NYS	15.88	27.88	Cadmus Corp (H)	34.25	0.88 2.5
NYS	29.63	18.13	Computer Sciences (H)	28.63	1.13 1.9
OTC	21.00	8.25	Computer Horizons	16.50	0.25 1.4
NYS	57.63	39.63	Computer Sciences	46.75	0.38 0.8
NYS	13.50	7.50	Computer Task Group	11.50	0.75 2.1
NYS	36.25	6.00	Comsat Inc.	20.25	2.00 6.2
OTC	11.38	5.38	Cognitive Data Systems Inc	8.88	0.11 1.3
OTC	12.13	6.13	Computer Discovery Software	8.31	0.19 2.4
NYS	41.88	33.88	General Motors-E (EDS)	62.38	-0.11 -0.1
OTC	14.25	6.00	Medical Care	10.63	0.94 8.7
OTC	13.25	7.50	Intelligent Electronics	13.88	2.63 20.0
OTC	19.00	3.88	Mecasis	5.00	0.00 1.1
OTC	26.75	8.50	Micropage Inc	11.00	1.25 12.8
OTC	48.75	28.50	Paychex	40.38	1.38 2.9
NYS	51.63	38.13	Policy Management Sys	49.38	0.31 -0.1
OTC	30.50	10.75	Reynolds and Reynolds (H)	30.50	1.38 12.4
OTC	22.25	18.75	SEI Corp	18.50	0.00 4.9
OTC	36.13	22.13	Shared Medical Systems	35.75	0.25 0.7
OTC	8.00	6.00	SHL Systemhouse	8.00	0.31 4.[illegible]
OTC	21.50	9.25	Software Spectrum Inc.	17.75	1.25 7.6
OTC	49.00	32.25	Sungard Data Systems	45.25	1.88 4.0

KEY: (H) = 52-week high reached in period; (L) = 52-week low reached in period.

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E-mail directories

CONTINUED FROM PAGE 1

Yet in most large corporations, there are as many directories as there are E-mail systems. Separate directories means that changes made to one are not reflected in others, making directory synchronization a must.

"About two months ago, we were totally connected through a [value-added network]," said Donald Saul, staff analyst at Dayton Hudson Corp. in Minneapolis, the parent company of several department stores with different E-mail systems. "Now keeping our directory in sync with changes in other directories is a nightmare. It's manual. Whenever there's a change, it requires changes in seven directories."

Think of the directory as the electronic equivalent of the phone book, said Gary Rowe, a principal at Rapport Communication in Middletown, Ohio.

The major issues surrounding directories are their proprietary and often incompatible nature and their lack of synchronization and mission-critical features, such as security.

But letting users on different systems communicate is not as simple as installing gateways that translate messages among dissimilar systems. For information systems managers and administrators, a far more complex issue is making sure any name and address changes are reflected in all directories.

A basic E-mail directory has user names and addresses that it can resolve. That means that if a user looks up a name, the directory automatically maps the E-mail address to the name.

X.500 to the rescue?

Eventually, administrators hope to have just one corporatewide X.500-based directory, but getting there will be tough.

X.500 is an International Telecommunication Union standard for directories. The latest X.500 standard — set in 1993 — may be the silver lining in the directory cloud. With a number of Fortune 500 companies already in pilot stages with it, analysts expect a flurry of implementation activity next year.

The 1993 standard includes some key components not included in the 1988 version — such as security, synchronization and replication — making it easier for vendors to develop products that can be used to create secure and reliable directories.

Mike McPherson, a programmer/analyst at the Mayo Foundation in Rochester, Minn., said his organization has directory synchronization but no master directory. A master directory would allow a user on any directory to look up other users with ease.

"We want a centrally administered site so if a user is added, it doesn't have to be defined on several platforms," he explained. "It becomes real important because of the nature of the business." Currently, users with several different machines have to be defined separately, leading to a lot of confusion.

For CNA Insurance Co. in Chicago, synchronizing directories at 80 branches throughout the country over fractional T1 lines is tedious and error-prone, said Mike DiVarco, a project manager at CNA.

Reading difficulties

Current technology is also not conducive to setting up unified directories. One user at the conference, for example, said his company's LAN-based systems cannot read the mainframe directories.

Still, it is not the lack of products that has put organizations in this situation. Vendors such as SoftSwitch, Inc., now a part of Lotus Development Corp., and Control Data Systems, Inc. have been trying to solve these problems for years.

Why, then, the turmoil in the user community today?

"Cost," said Tim Sloane, an analyst at Aberdeen Group in Boston. Most products are just too expensive and do not show hard financial benefits. Besides, "these users are in the mode of buying off-the-shelf solutions and implementing [them] themselves. SoftSwitch and Control Data are not packaged that way."

ISDN costs may fall

CONTINUED FROM PAGE 1

the technology.

"Dealing with the phone company is a pain in the ass. I can send data [over ISDN] more easily to England than I can to Ohio," said Brian Taylor, a technical consultant at Color Concepts, a graphics prepress firm in Troy, Mich., that has 10 ISDN lines.

Hundt declined to give specifics on the rule-making proposal but did say the commission wants responses from the computer industry, which typically has little contact with the FCC.

Lower pricing "is a start, but it's not going to make a dramatic difference until the other problems are taken care of," said Marc Dodge, a telecommunications manager at United Parcel Service, Inc. in Mahwah, N.J. Dodge cited coverage and a lack of applications as the other major issues with ISDN. "You have to take care of all three problems before it has a dramatic impact," he added.

Agreement on the way

Industry observers said the FCC's pending action on ISDN could lead to resolutions to these issues. Depending on what the FCC decides, "this could lead to a common ground for ISDN or to the burial ground," said Maribel Lopez Howard, an analyst at International Data Corp. in Framingham, Mass.

For its part, the telecommunications industry responded with enthusiasm. "It's fantastic news for us and fantastic for all of the Internet users and everybody else who recognizes the benefit of ISDN for advancing the information superhighway," said a Bell Atlantic Corp. spokesman.

Bell Atlantic, along with Pacific Bell, has been particularly vocal about a controversial January FCC decision involving ISDN tariffs charged by Nynex Corp. Bell Atlantic stopped its ISDN marketing plans in the wake of this case because it would have had to raise its prices on ISDN to comply with the FCC's tariff decision.

Industry interest comes because "the commission's regulations right now stand in the way of reducing [ISDN] costs, and it sounds like the commission is going to take itself out of the way," said Kathryn Kleiman, an attorney at Fletcher, Heald & Hildreth, a Rosslyn, Va., law firm specializing in telecommunications.

Lopez Howard said that by creating new opportunities for contact between the various carriers and other vendors involved in ISDN, the FCC could propagate some nationwide standards for ISDN pricing and delivery.

Still, one lingering concern is that ISDN prices could actually rise, particularly if the FCC decides to price ISDN lines — which have three channels — on a per-channel basis.

Higher prices are an issue for Tom Maile, vice president of telecommunications at CBS, Inc. in New York. Maile said his biggest concern, however, comes back to support from local phone companies. CBS uses ISDN at points across the country for video and audio transmission as well as traditional information systems functions and telecommuting.

"Getting [ISDN] installed and running is such a hassle," Maile said.

ISDN line deployment has been slow to ramp up

1994		1995		1996	
Planned ISDN lines	ISDN lines as a percentage of total lines	Planned ISDN lines	ISDN lines as a percentage of total lines	Planned ISDN lines	ISDN lines as a percentage of total lines
81,316	62%	90,116	66.6%	97,453	70.5%

Source: Bell Communication Research, Inc., Livingston, N.J.; International Data Corp., Framingham, Mass.

Messaging vendors float wares at soggy show

By Suruchi Mohan

NEW ORLEANS

The annual Electronic Messaging Association conference certainly began with a bang here last week, but it was a bang of a different sort. It came from the sky, depositing 19 inches of rain in eight soggy hours and leaving attendees whimpering in the muggy weather.

But neither rain nor wind could dampen Lotus Development Corp. Chief Executive Officer Jim Manzi's resolve to deliver his keynote. After the airport closed, he left Pensacola, Fla., at 2 a.m. and drove here, arriving at 6 a.m. Tuesday. He was on the podium 2½ hours later.

And while Manzi might not have sounded like his usual, upbeat self, vendors flocking to the show certainly did as they pitched new products and services with zeal. But the enthusiasm did not last long, as rising waters forced many vendors to wind up early Wednesday and cancel breakout sessions.

Microsoft Corp.'s undelivered Exchange messaging server attracted its share of announcements from third-party vendors:

- **Integra Technology International, Inc.** in Bellevue, Wash., announced the Integra WinBeep and the Integra Paging Server for the Exchange server. WinBeep lets users send text to alphanumeric pagers or mobile Windows users; and the Paging Server lets users page from within Exchange.
- **PC Docs, Inc.** in Tallahassee, Fla., announced it is developing Docs Interchange for the Exchange server. Based on document publishing technology, the product will automatically replicate selected documents or portions of documents to the Exchange public servers. These can then be shared with remote users. The product will be delivered when Exchange ships.
- **Verity, Inc.** in Mountain View, Calif., said it will make its Topic Agents technology available on Exchange. Agent technology lets users filter, search and view information in the Exchange database.
- **Watermark Software, Inc.** in Burlington, Mass., announced that its Enterprise Series imaging system, which integrates images with standard applications, will be tightly integrated with the Exchange server.

The art of technology assessment

IS managers are slowly being confronted with a tempting array of low-cost technologies that offer both pitfalls and opportunities. In the past, managers struggled with the constraints of too little memory, storage and processing power. Now they have those resources in abundance throughout the organization, and new options are springing up, spawned by the PC revolution.

Intel recently dropped the entry-level price of its Proshare application to under $1,000 in hopes of encouraging PC videoconferencing. PC-based workflow continues to increase the volume of work that can be handled by automated routines over a LAN. And upcoming, point-and-click visual languages will extend programming skills closer to the end user.

"We are presiding over an embarrassment of riches. The hard part will be deciding what you want to do," said William Caffery, vice president of advanced technology strategies at Gartner Group. Caffery addressed the Executive Technology Summit sponsored by the Society for Information Management in Phoenix recently.

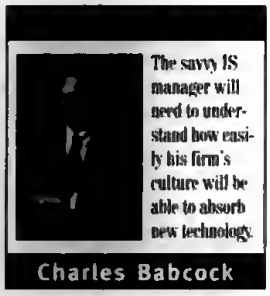
Organizations do not absorb new technology equally. The savvy IS manager will need to understand not only how new technology can push back business barriers but also how easily his firm's culture will be able to absorb it.

Some IS managers might prefer to have the company's advanced technology group shoulder this task. But members of advanced technology groups are used to talking to industry sources and top management. They can recommend emerging technologies, select standards with the most backing and perform central planning. But can they predict what end users will actually use?

The new element in technology assessment is the proliferation of options close to end users, marked down radically to achieve market share. Those diverse solutions run on latest high-powered microprocessors, inexpensive mass storage and generous network bandwidth.

The FUD — fear, uncertainty and doubt — of the past is being replaced with PIC, or "panic, insecurity and chaos," said Caffery, as Intel and Microsoft compress product life cycles and introduce next-generation products and their competitors struggle to achieve payback volumes on the current generation.

As you contemplate the ever-changing landscape, you will find that amateur developers in your training unit are creating multimedia applications that are difficult to store in existing database systems. For instance, those renegades in sales could implement their own telephony application that gives them Caller ID and call waiting even though they have been told that these features will be implemented for everyone next year through the PBX.



The savvy IS manager will need to understand how easily his firm's culture will be able to absorb new technology.

Charles Babcock

Is your company largely composed of peer groups that form and reform overnight? Videoconferencing and working on-line on joint documents might be the fix they need.

Is your organization more structured and hierarchical? PC workflow that adopts to your procedures or replaces support personnel who refuse to learn could have a big impact.

At Windows World/Comdex Spring '95 in Atlanta, I put on a pair of LCD 3-D glasses at a multimedia booth and watched an industrial part popout of the screen and rotate as if waiting for the next step in an assembly line. The potential of multimedia to improve training and make it a just-in-time function — available when the employee is most ready to learn — could revise management estimates of how quickly lower-level employees can learn or how much they can do.

Caffery says the list of new offerings is about to explode. IS managers will clearly have to pick and chose or guide spontaneous user decisions as best they can, with one eye on the existing infrastructure and the other on the competitive advantage of quickly implemented, new technologies.

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Inside Lines

Take four CPUs and call me in the morning

Dell is reportedly prepping a high-end quadprocessor rack-mount server that will be based on Intel's new P6 chip. The system was designed using Intel's Hydra symmetrical multiprocessor reference architecture and will feature multiple Peripheral Component Interconnect channels. According to sources close to the company, Dell already has a working model in its testing labs and is expected to announce the product in the third quarter.

Now it can be told

IBM has finally been freed to flap its gums about incorporating the long-awaited High Performance Routing (HPR) version of the Advanced Peer-to-Peer Networking (APPN) protocol into its routers and front-end processors. The computer giant's lips were sealed for political reasons while the multivendor group — to which IBM ceded control of APPN a couple years back — finished work on an HPR standard. Now IBM is ready to introduce HPR-enabled products at an APPN conference next week in Chicago.

So who wants to go to work anyway?

Sybase plans to detail a strategy this week to entice disconnected workers, such as field salesmen, to use their laptops, PDAs and other mobile devices to access and update Sybase's SQL Server database. Sybase co-founder Bob Epstein is expected to reveal how and when the firm will integrate its database with message-based products from Complex Architectures, which Sybase acquired earlier this year.

Novell nabs Price Waterhouse bigwig for top post

In a strange twist of fate, one of the most oft-quoted Notes boosters in the history of the computer trade press — Sheldon Laube, national director of information technology at Price Waterhouse — is expected to be named chief technology officer at Novell this week. It looks like there won't be any more Notes networks for Laube. Was it secretly Novell's GroupWise all along, Sheldon?

If a Redwood falls, will anyone hear it?

Banyan will hold a strategy briefing tomorrow at its Westboro, Mass., headquarters to unveil its three-year plan, code-named Redwood. Company executives will outline upcoming Vines and Enterprise Network Services plans. The strategy briefing follows close on the heels of the company's user group meeting in Orlando, Fla., and insiders said Banyan executives are still smarting from user barbs about the company's minuscule market share and its dwindling chances of breaking out of niche-player status.

Not a boy's toy anymore

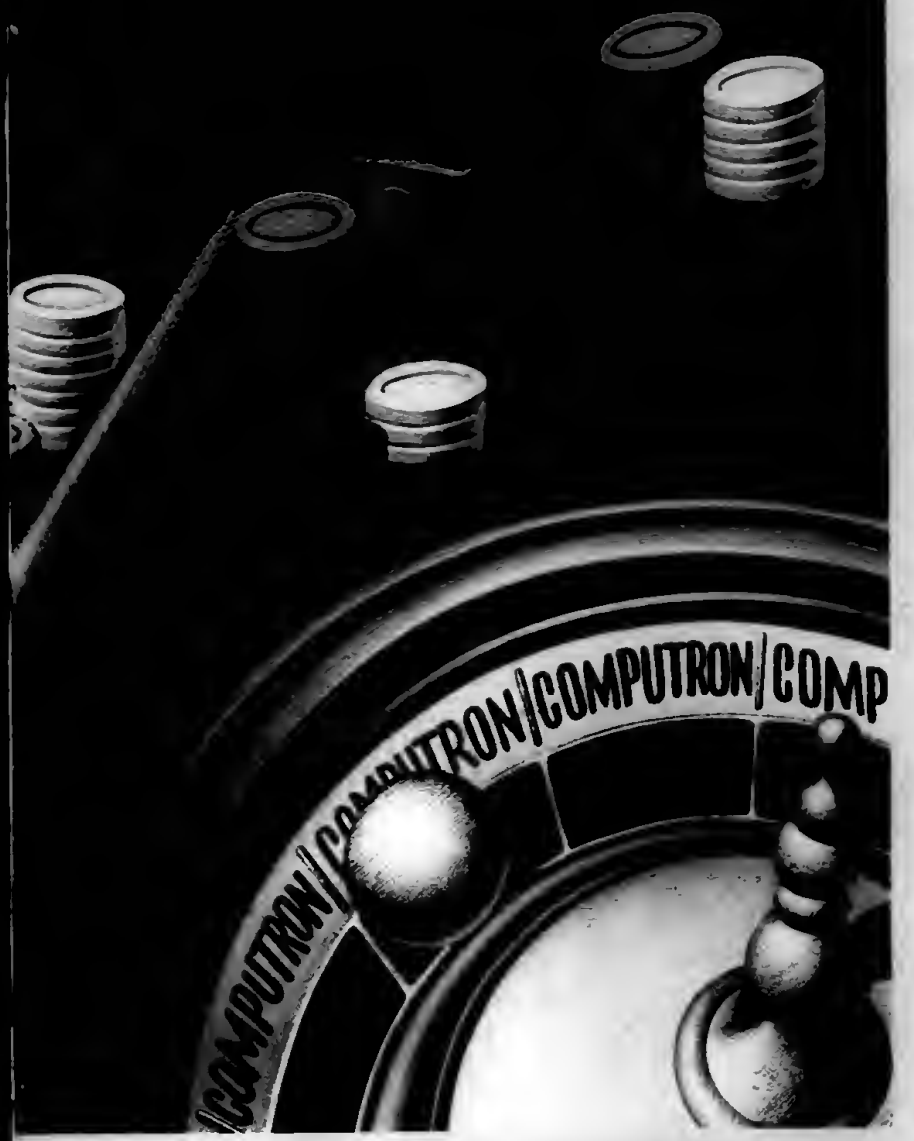
The Internet's legendary gender imbalance appears to be shifting, with women now making up more than one-third of cybersurfers. The ratio of men to women with Internet access reached 64% to 36%, according to results released last week by Matrix Information & Directory Services. A survey in December sampled 1,463 organizations, excluding commercial on-line services.

Special Delivery? No thanks, SAP

SAP officials last week confirmed that Special Delivery — its preconfigured R/3 client/server software that came bundled with consulting services and sold for a whopping flat fee of $500,000 — has been a flop in the U.S.. Industry observers said SAP sold only a handful of the mega-pricey packages, although the company coyly declined to reveal exact numbers.

Internet users beware! A new crop of totally bogus viruses are popping up like spring flowers. Among them: the Ted Turner Virus, which colorizes your monochrome monitor, or the Freudian virus, where your computer becomes obsessed with marrying its motherboard. Then there's the Kevorkian virus, which helps your computer shut down as an act of mercy. If the act of passing along news tips appeals to you, give Computerworld *a call on our 24-hour voice-mail tip line at (508) 820-8555 or our toll-free number at (800) 343-6474. News editor Maryfran Johnson can be reached by phone at (508) 820-8179 or via the Internet at mjohnson@cw.com.*

Don't Gamble When Choosing Client/Server Financial Software.



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